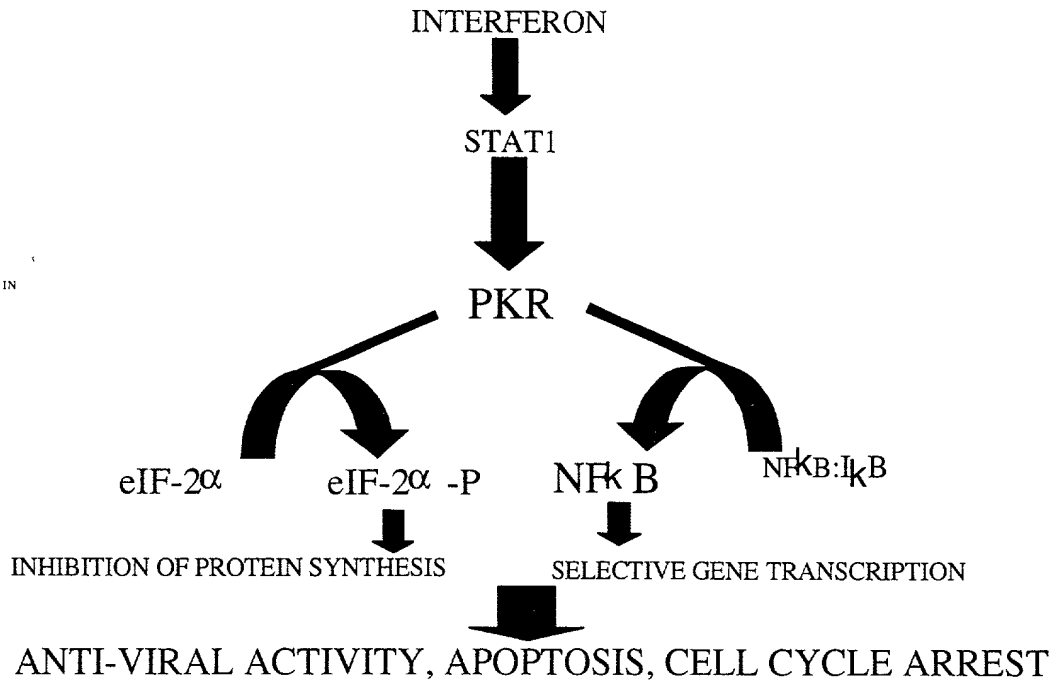

INTERFERON
STAT1
PKR
eIF-2α
eIF-2α -P
NFκ B
NFκB:IκB
INHIBITION OF PROTEIN SYNTHESIS
SELECTIVE GENE TRANSCRIPTION
ANTI-VIRAL ACTIVITY, APOPTOSIS, CELL CYCLE ARREST

FIGURE 1

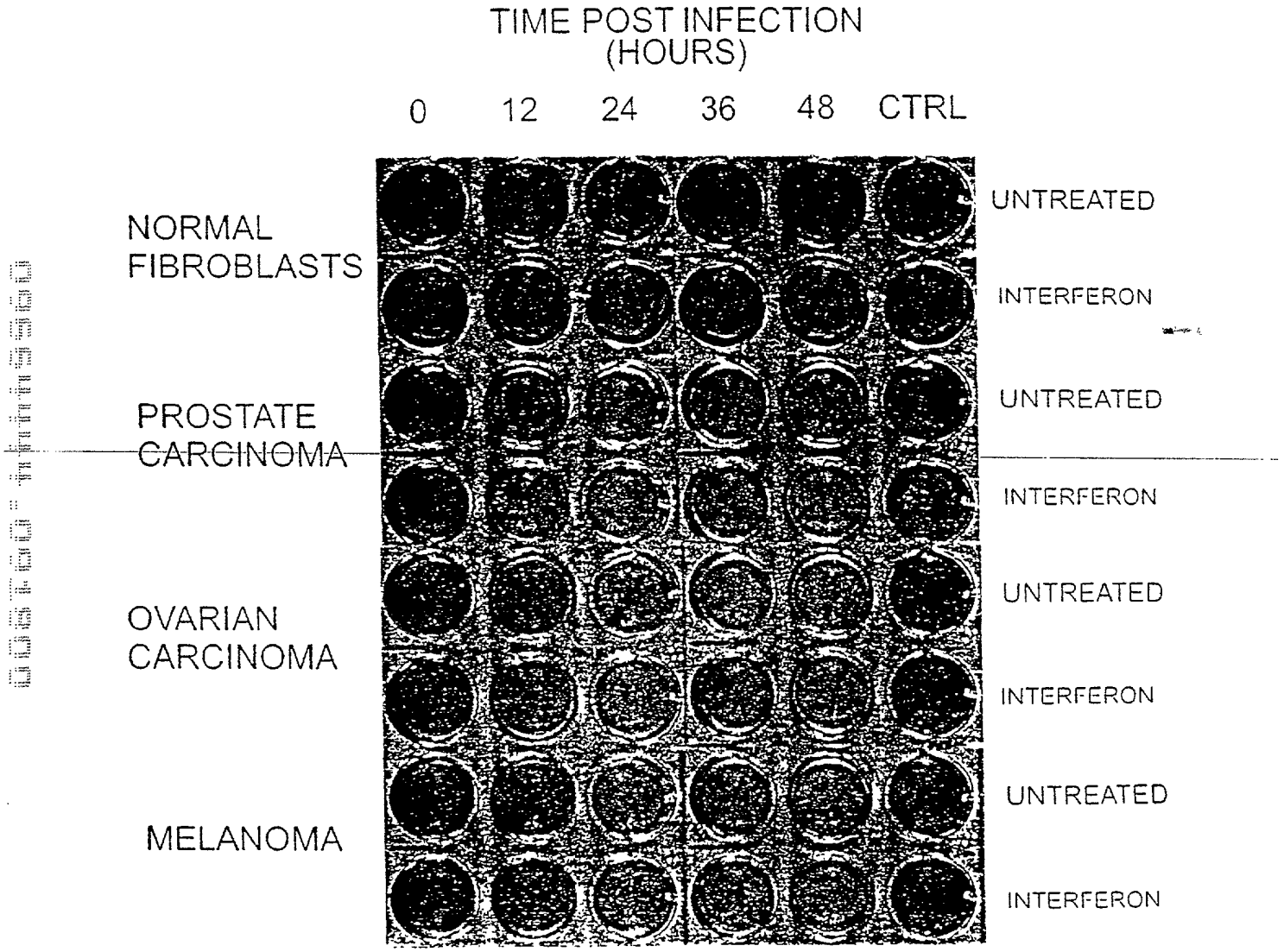
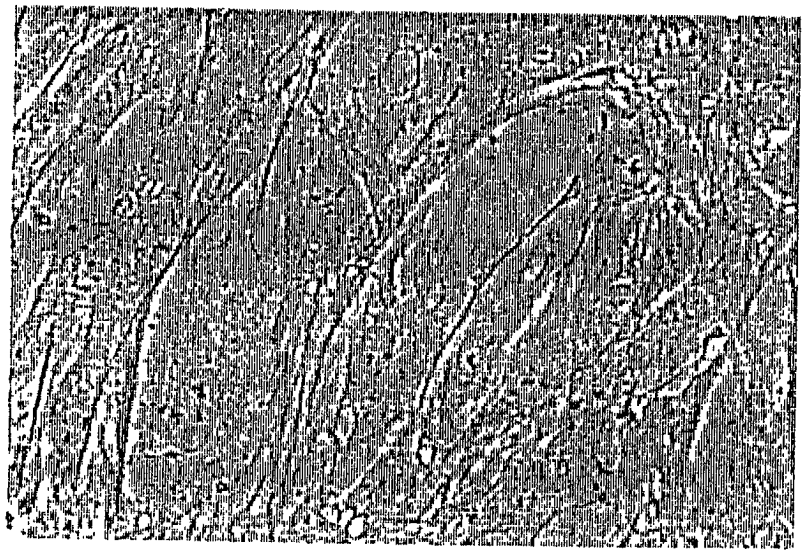

TIME POST INFECTION
(HOURS)
0
12
24
36
48
CTRL
NORMAL
FIBROBLASTS
PROSTATE
CARCINOMA
OVARIAN
CARCINOMA
MELANOMA
UNTREATED
INTERFERON
UNTREATED
INTERFERON
UNTREATED
INTERFERON
UNTREATED
INTERFERON

FIGURE 2

VSV INFECTION OF NORMAL HUMAN FIBROBLASTS

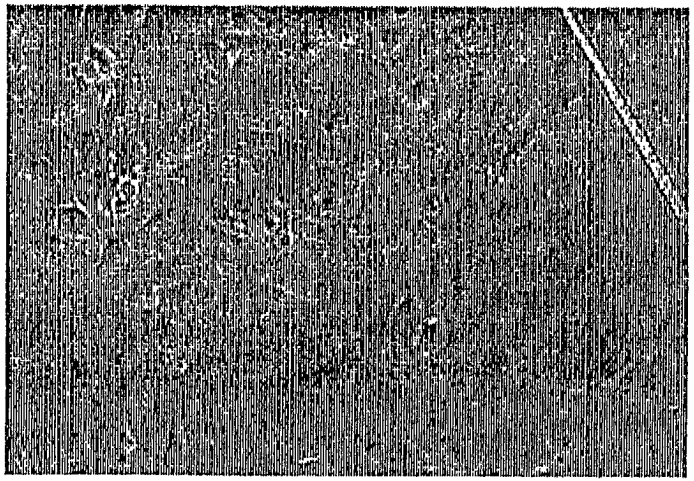


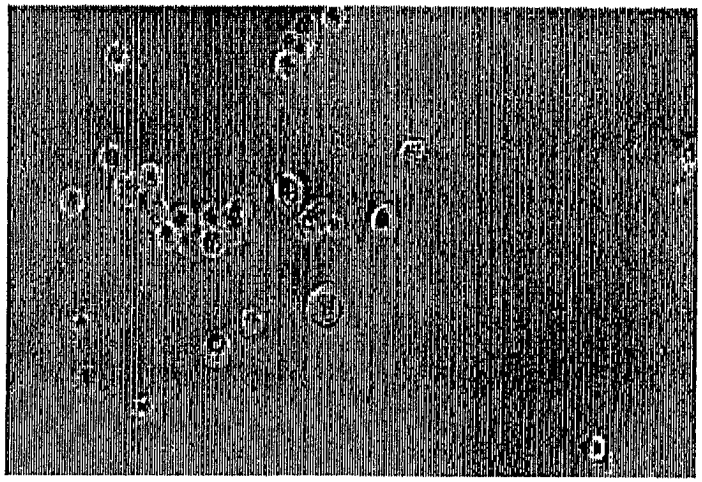
MOCK INFECTED

VSV MOI 1 PFU/18 HOURS

FIGURE 3A

VSV INFECTION OF OVCAR433



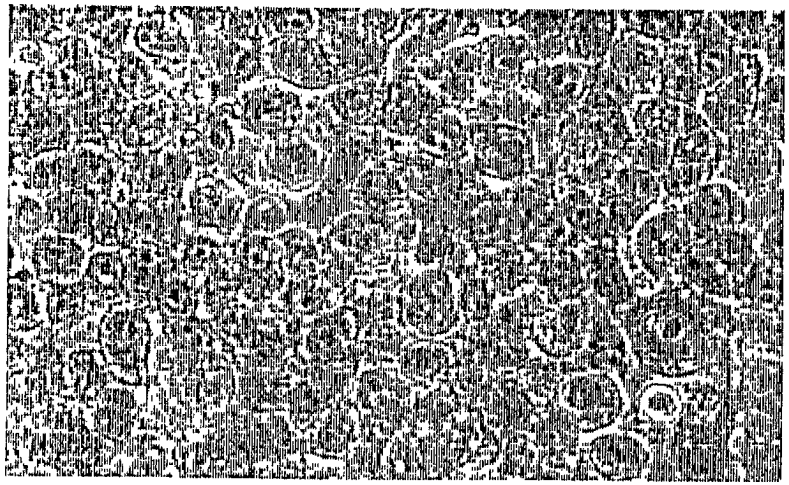


MOCK INFECTED

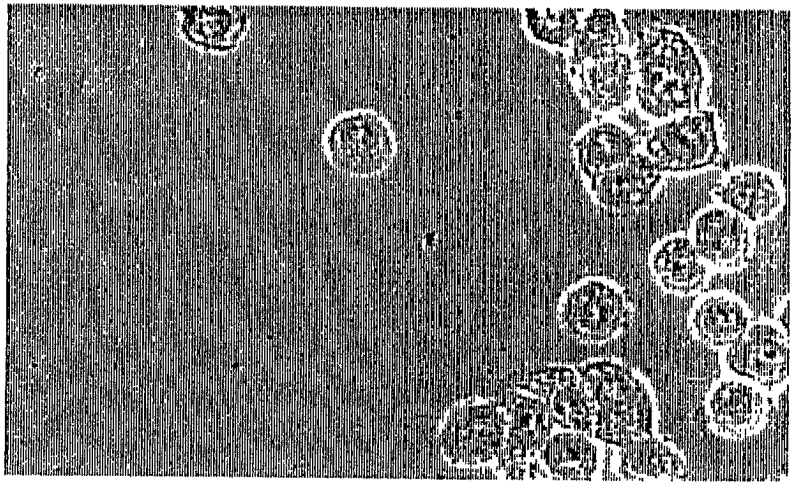
VSV 0.1PFU/18 HRS

FIGURE 3B

VSV INFECTION OF KB CELLS



MOCK INFECTED



VSV moi 1 PFU/18HRS

FIGURE 3C

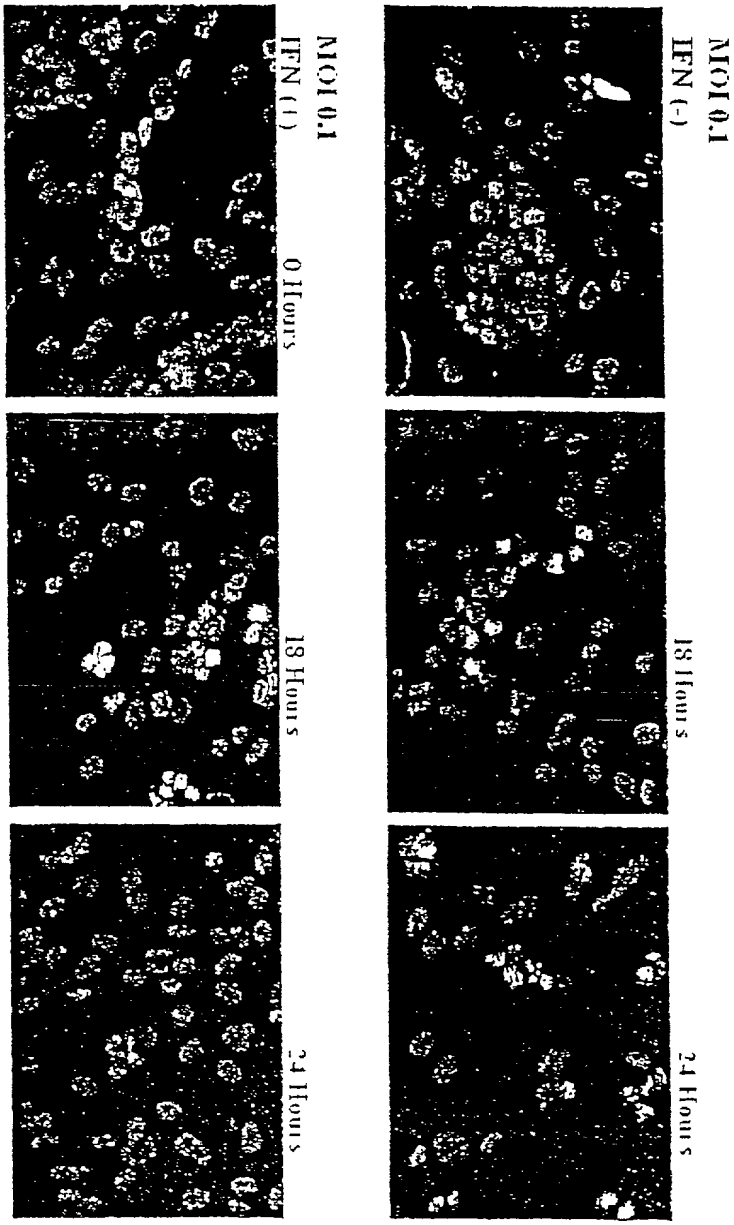

MOI 0.1
IFN (-)
MOI 0.1
IFN (+)
0 Hours
18 Hours
24 Hours
18 Hours
24 Hours

FIGURE 4

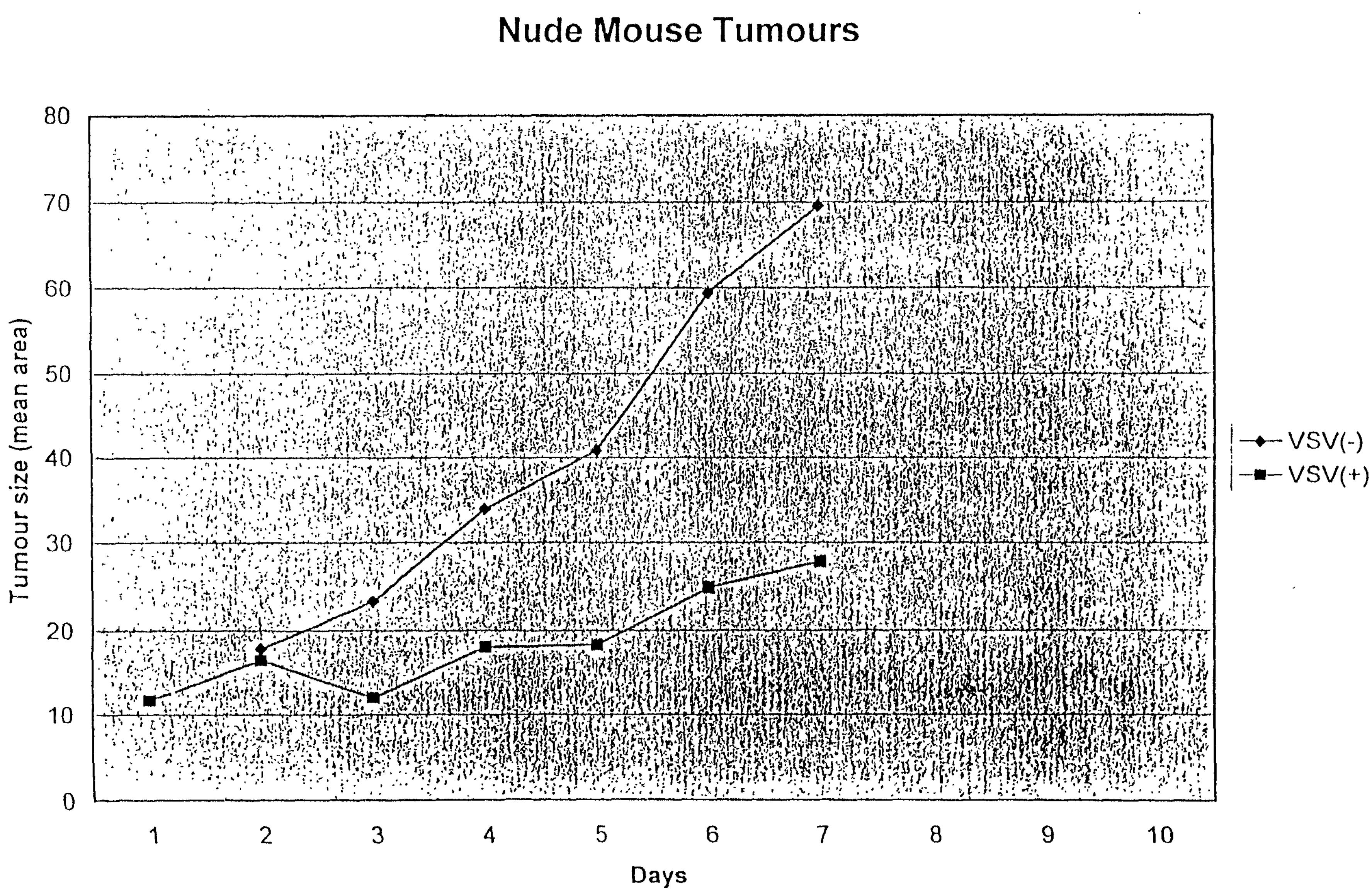


FIGURE 15

FIGURE 6

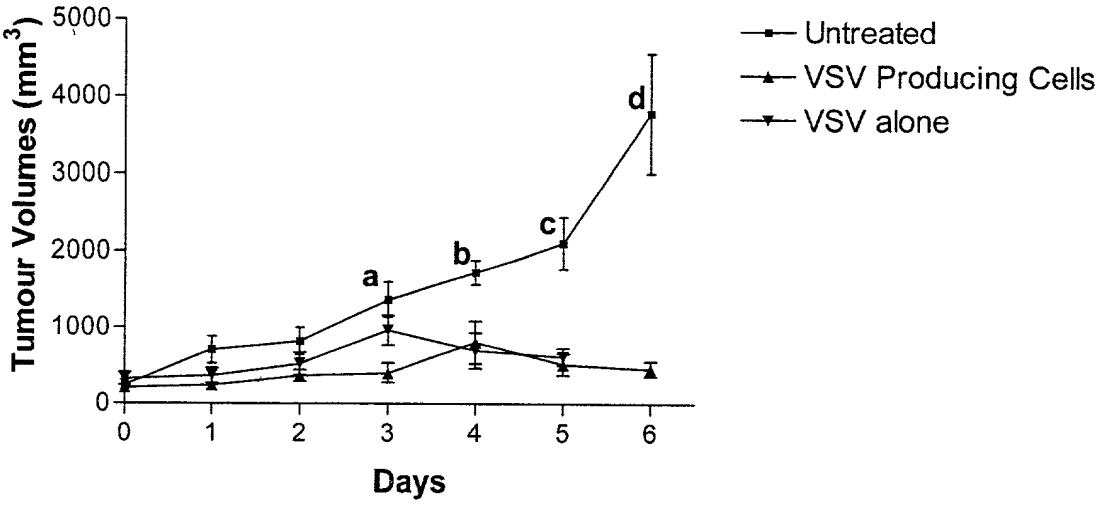
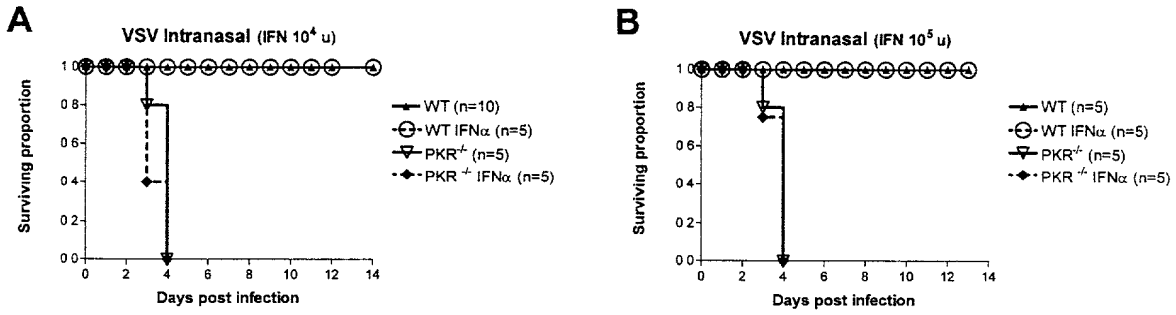

Tumour Volumes (mm3)
5000
4000
3000
2000
1000
0
0
1
2
3
4
5
6
Days
a
b
c
d
Untreated
VSV Producing Cells
VSV alone

FIGURE 7



FIGURES 8A AND 8B

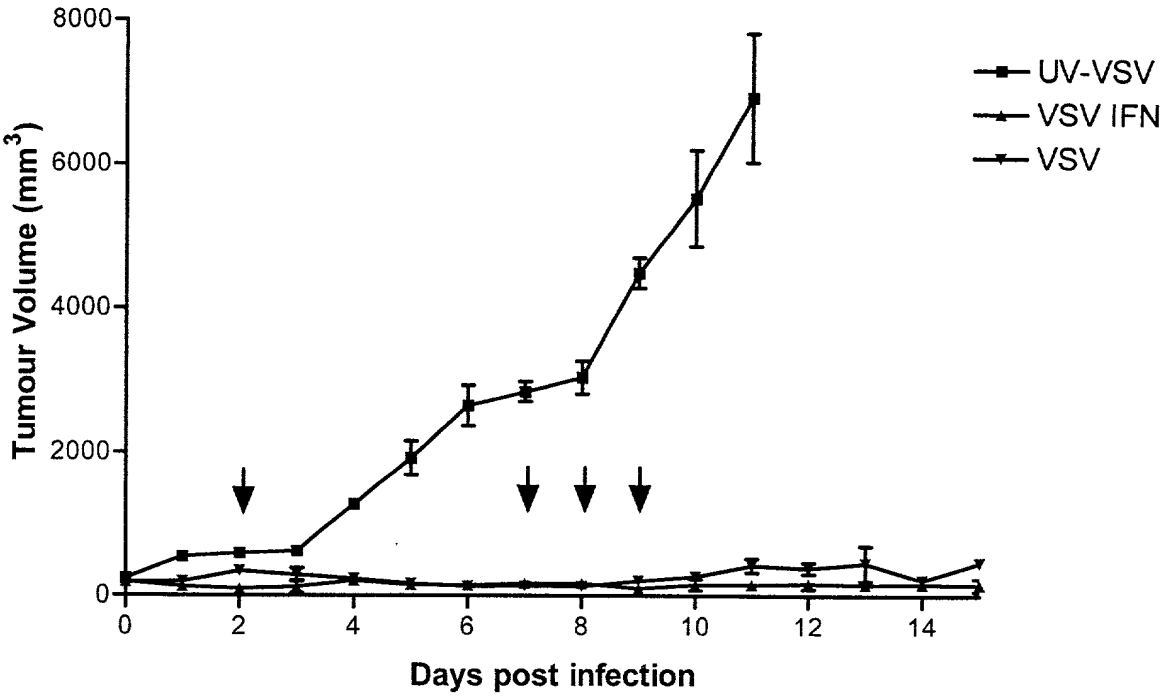

8000
6000
4000
2000
0
Tumour Volume (mm3)
0
2
4
6
8
10
12
14
Days post infection
UV-VSV
VSV IFN
VSV

FIGURE 9

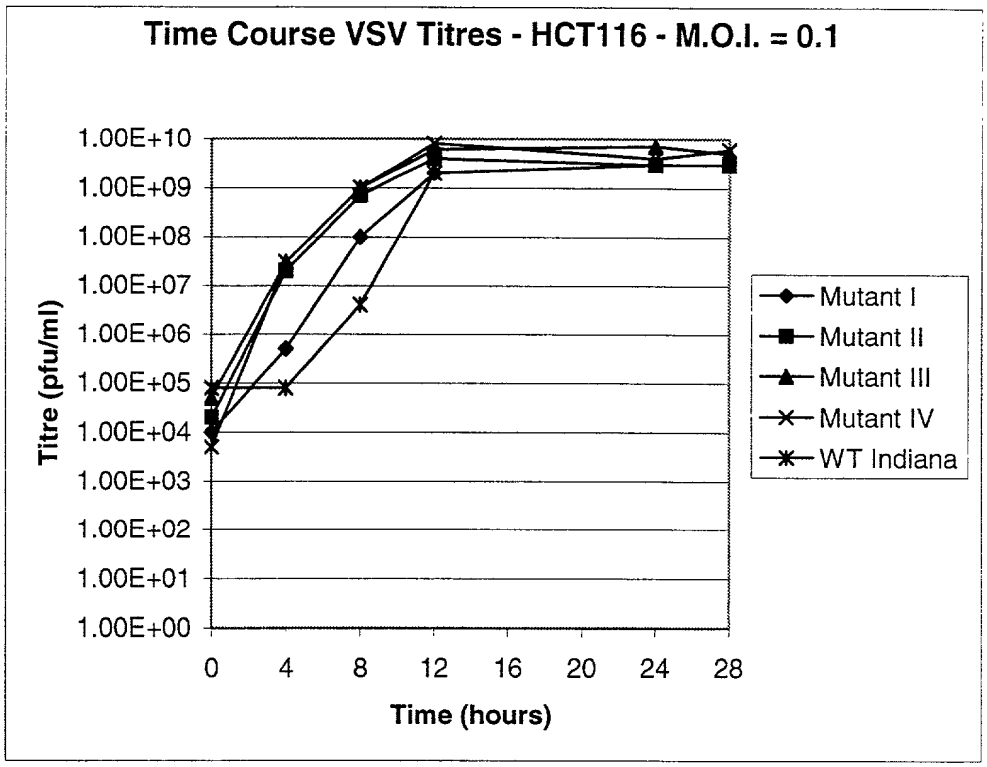

Time Course VSV Titres - HCT116 - M.O.I. = 0.1
Titre (pfu/ml)
1.00E+10
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
1.00E+03
1.00E+02
1.00E+01
1.00E+00
0
4
8
12
16
20
24
28
Time (hours)
Mutant I
Mutant II
Mutant III
Mutant IV
WT Indiana

FIGURE 10A

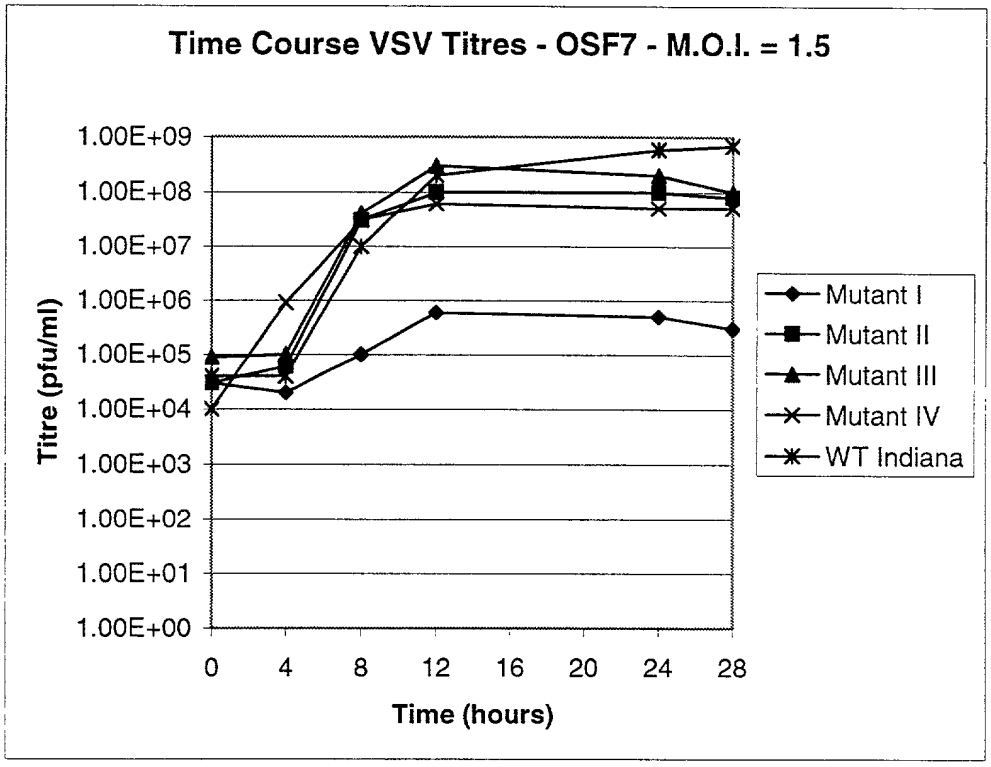

Time Course VSV Titres - OSF7 - M.O.I. = 1.5
Titre (pfu/ml)
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
1.00E+03
1.00E+02
1.00E+01
1.00E+00
0
4
8
12
16
20
24
28
Time (hours)
Mutant I
Mutant II
Mutant III
Mutant IV
WT Indiana

FIGURE 10B

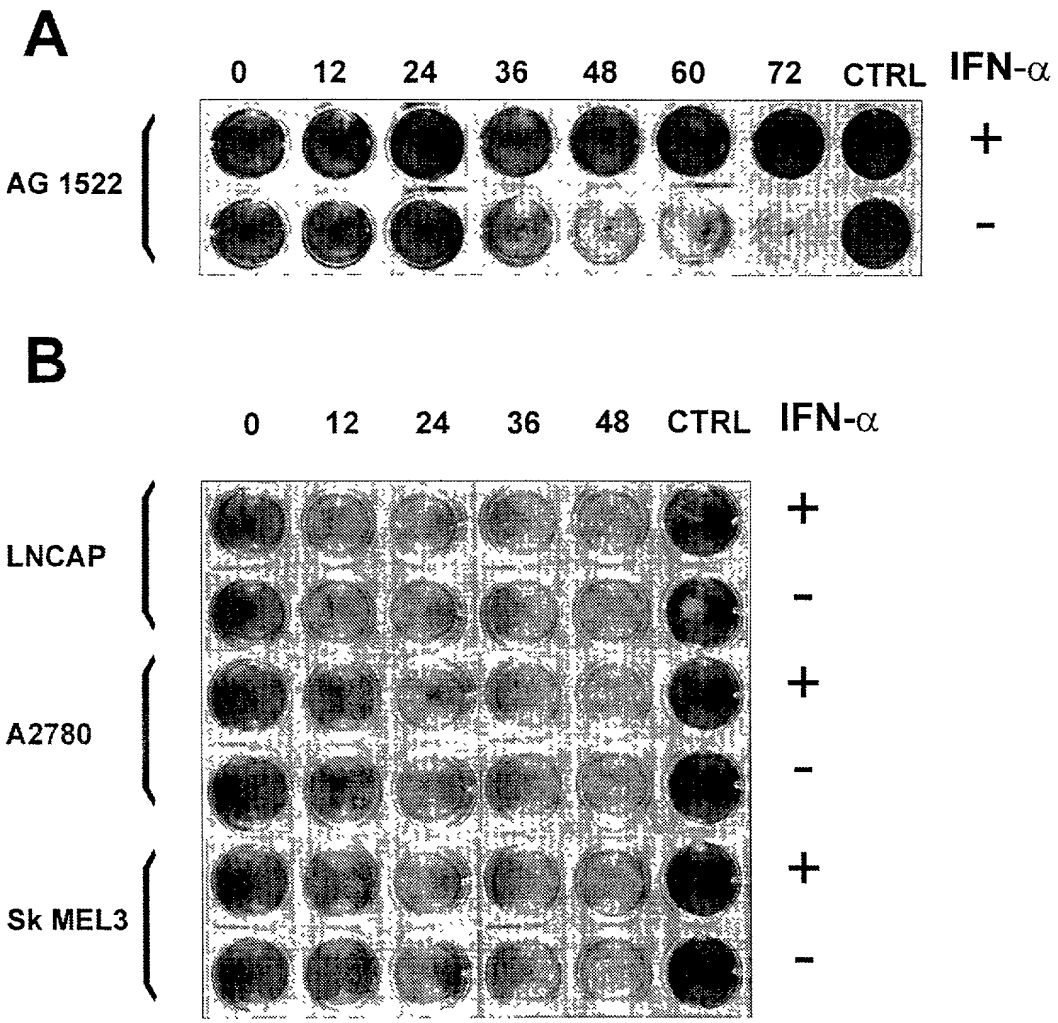

A
0
12
24
36
48
60
72
CTRL
IFN-α
AG 1522
+
-
B
0
12
24
36
48
CTRL
IFN-α
LNCAP
+
-
A2780
+
-
Sk MEL3
+
-

FIGURE 11

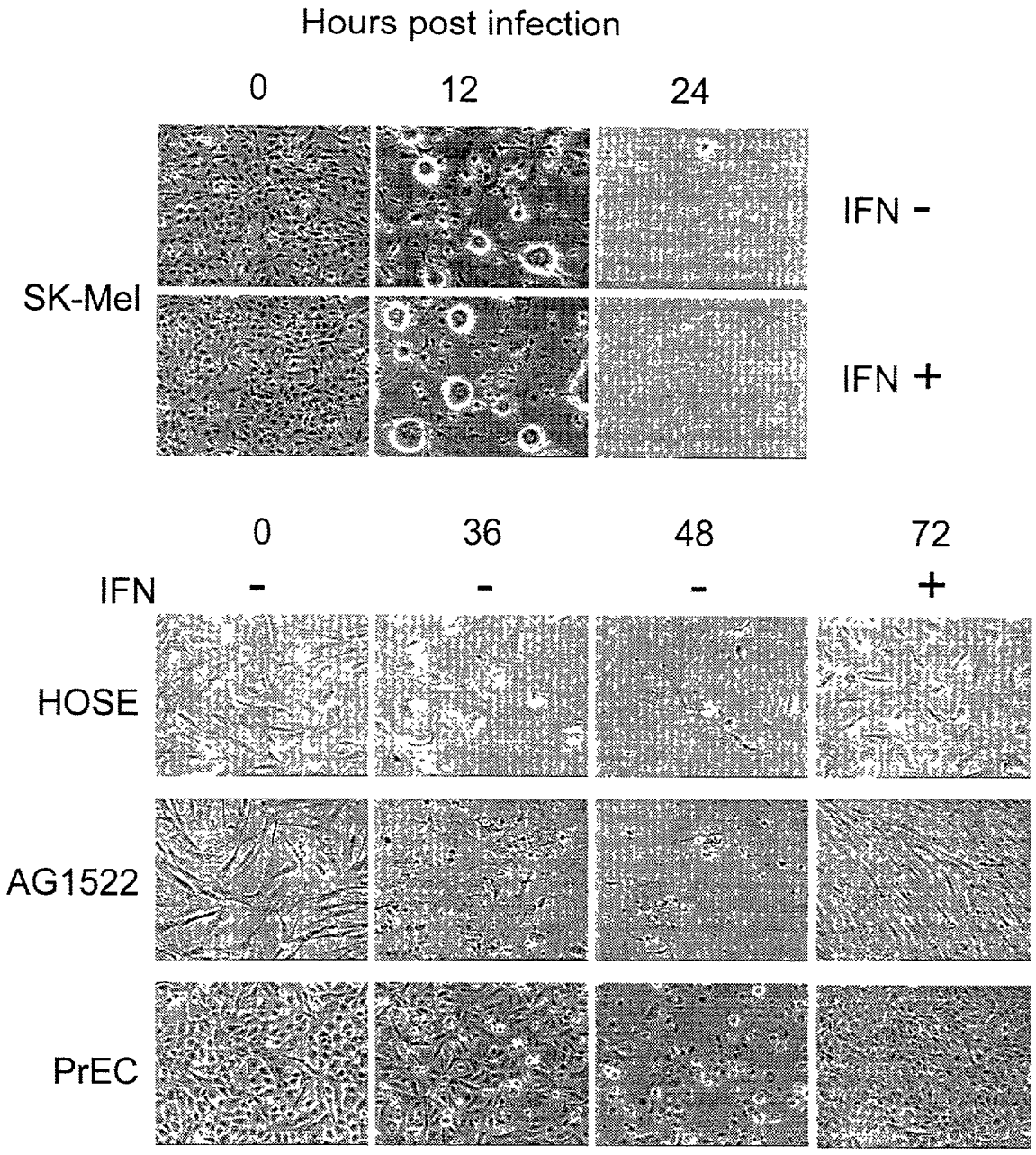

Hours post infection
0
12
24
SK-Mel
IFN -
IFN +
0
36
48
72
IFN
-
-
-
+
HOSE
AG1522
PrEC

FIGURE 12

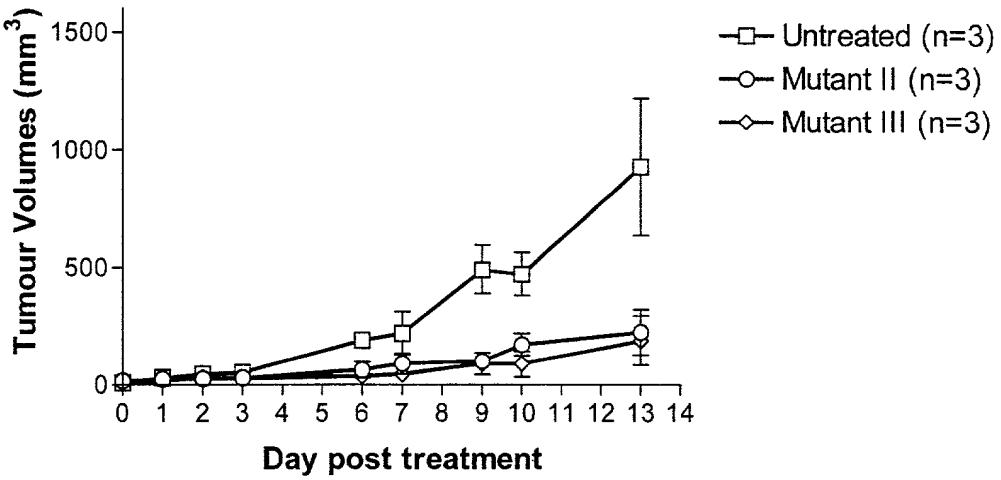

Tumour Volumes (mm3)
1500
1000
500
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
Day post treatment
Untreated (n=3)
Mutant II (n=3)
Mutant III (n=3)

FIGURE 13

```
                    1                                                   60
GenBank N nucl.     ATGTCTGTTACAGTCAAGAGAATCATTGACAACACAGTCATAGTTCCAAAACTTCCTGCA
     HR N nucl.     ATGTCTGTTACAGTCAAGAGAATCATTGCCAACACAGTCATAGTTCCAAAACTTCCTGCA
     M2 N nucl.     ATGTCTGTTACAGTCAAGAGAATCATTGACAACACAGTCATAGTTCCAAAACTTCCTGCA
     M3 N nucl.     ATGTCTGTTACAGTCAAGAGAATCATTGACAACACAGTCATAGTTCCAAAACTTCCTGCA
     M4 N nucl.     ............................................................

                    61                                                  120
GenBank N nucl.     AATGAGGATCCAGTGGAATACCCGGCAGATTACTTCAGAAAATCAAAGGAGATTCCTCTT
     HR N nucl.     AATGAGGATCCAGTGGAATACCCGGCAGATTACTTCAGAAAATCAAAGGAGATTCCTCTT
     M2 N nucl.     AATGAGGATCCAGTGGAATACCCGGCAGATTACTTCAGAAAATCAAAGGAGATTCCTCTT
     M3 N nucl.     AATGAGGATCCAGTGGAATACCCGGCAGATTACTTCAGAAAATCAAAGGAGATTCCTCTT
     M4 N nucl.     ............................................................

                    121                                                 180
GenBank N nucl.     TACATCAATACTACAAAAAGTTTGTCAGATCTAAGAGGATATGTCTACCAAGGCCTCAAA
     HR N nucl.     TACATCAATACTACAAAAAGTTTGTCAGATCTAAGAGGATATGTCTACCAAGGCCTCAAA
     M2 N nucl.     TACATCAATACTACAAAAAGTTTGTCAGATCTAAGAGGATATGTCTACCAAGGCCTCAAA
     M3 N nucl.     TACATCAATACTACAAAAAGTTTGTCAGATCTAAGAGGATATGTCTACCAAGGCCTCAAA
     M4 N nucl.     ............................................................

                    181                                                 240
GenBank N nucl.     TCCGGAAATGTATCAATCATACATGTCAACAGCTACTTGTATGGAGCATTAAAGGACATC
     HR N nucl.     TCCGGAAATGTATCAATCATACATGTCAACAGCTACTTGTATGGAGCATTGAAGGACATC
     M2 N nucl.     TCCGGAAATGTATCAATCATACATGTCAACAGCTACTTGTATGGAGCATTGAAGGACATC
     M3 N nucl.     TCCGGAAATGTATCAATCATACATGTCAACAGCTACTTGTATGGAGCATTGAAGGACATC
     M4 N nucl.     ............TCAATCATACATGTCAACAGCTACTTGTATGGAGCATTGAAGGACATC

                    241                                                 300
GenBank N nucl.     CGGGGTAAGTTGGATAAAGATTGGTCAAGTTTCGGAATAAACATCGGGAAAGCAGGGGAT
     HR N nucl.     CGGGGTAAGTTGGATAAAGATTGGTCAAGTTTCGGAATAAACATCGGGAAGGCAGGGGAT
     M2 N nucl.     CGGGGTAAGTTGGATAAAGATTGGTCAAGTTTCGGAATAAACATCGGGAAGGCAGGGGAT
     M3 N nucl.     CGGGGTAAGTTGGATAAAGATTGGTCAAGTTTCGGAATAAACATCGGGAAGGCAGGGGAT
     M4 N nucl.     CGGGGTAAGTTGGATAAAGATTGGTCAAGTTTCGGAATAAACATCGGGAAGGCAGGGGAT

                    301                                                 360
GenBank N nucl.     ACAATCGGAATATTTGACCTTGTATCCTTGAAAGCCCTGGACGGCGTACTTCCAGATGGA
     HR N nucl.     ACAATCGGAATATTTGACCTTGTATCCTTGAAAGCCCTGGACGGTGTACTTCCAGATGGA
     M2 N nucl.     ACAATCGGAATATTTGACCTTGTATCCTTGAAAGCCCTGGACGGTGTACTTCCAGATGGA
     M3 N nucl.     ACAATCGGAATATTTGACCTTGTATCCTTGAAAGCCCTGGACGGTGTACTTCCAGATGGA
     M4 N nucl.     ACAATCGGAATATTTGACCTTGTATCCTTGAAAGCCCTGGACGGTGTACTTCCAGATGGA

                    361                                                 420
GenBank N nucl.     GTATCGGATGCTTCCAGAACCAGCGCAGATGACAAATGGTTGCCTTTGTATCTACTTGGC
     HR N nucl.     GTATCGGATGCTTCCAGAACCAGCGCAGATGACAAATGGTTGCCTTTGTATCTACTTGGC
     M2 N nucl.     GTATCGGATGCTTCCAGAACCAGCGCAGATGACAAATGGTTGCCTTTGTATCTACTTGGC
     M3 N nucl.     GTATCGGATGCTTCCAGAACCAGCGCAGATGACAAATGGTTGCCTTTGTATCTACTTGGC
     M4 N nucl.     GTATCGGATGCTTCCAGAACCAGCGCAGATGACAAATGGTTGCCTTTGTATCTACTTGGC

                    421                                                 480
GenBank N nucl.     TTATACAGAGTGGGCAGAACACAAATGCCTGAATACAGAAAAAAGCTCATGGATGGGCTG
     HR N nucl.     TTATACAGAGTGGGCAGAACACAAATGCCTGAATACAGAAAAAGGCTCATGGATGGGCTG
     M2 N nucl.     TTATACAGAGTGGGCAGAACACAAATGCCTGAATACAGAAAAAGGCTCATGGATGGGCTG
     M3 N nucl.     TTATACAGAGTGGGCAGAACACAAATGCCTGAATACAGAAAAAGGCTCATGGATGGGCTG
     M4 N nucl.     TTATACAGAGTGGGCAGAACACAAATGCCTGAATACAGAAAAAGGCTCATGGATGGGCTG
```

FIGURE 14-1

```
                    481                                                 540
GenBank N nucl.     ACAAATCAATGCAAAATGATCAATGAACAGTTTGAACCTCTTGTGCCAGAAGGTCGTGAC
     HR N nucl.     ACAAATCAATGCAAAATGATCAATGAACAGTTTGAACCTCTTGTGCCAGAAGGTCGTGAC
     M2 N nucl.     ACAAATCAATGCAAAATGATCAATGAACAGTTTGAACCTCTTGTGCCAGAAGGTCGTGAC
     M3 N nucl.     ACAAATCAATGCAAAATGATCAATGAACAGTTTGAACCTCTTGTGCCAGAAGGTCGTGAC
     M4 N nucl.     ACAAATCAATGCAAAATGATCAATGAACAGTTTGAACCTCTTGTGCCAGAAGGTCGTGAC

                    541                                                 600
GenBank N nucl.     ATTTTTGATGTGTGGGGAAATGACAGTAATTACACAAAAATTGTCGCTGCAGTGGACATG
     HR N nucl.     ATTTTTGATGTGTGGGGAAATGACAGTAATTACACAAAAATTGTCGCTGCAGTGGACATG
     M2 N nucl.     ATTTTTGATGTGTGGGGAAATGACAGTAATTACACAAAAATTGTCGCTGCAGTGGACATG
     M3 N nucl.     ATTTTTGATGTGTGGGGAAATGACAGTAATTACACAAAAATTGTCGCTGCAGTGGACATG
     M4 N nucl.     ATTTTTGATGTGTGGGGAAATGACAGTAATTACACAAAAATTGTCGCTGCAGTGGACATG

                    601                                                 660
GenBank N nucl.     TTCTTCCACATGTTCAAAAAACATGAATGTGCCTCGTTCAGATACGGAACTATTGTTTCC
     HR N nucl.     TTCTTCCACATGTTCAAAAAACATGAATGTGCCTCGTTCAGATACGGAACTATTGTTTCC
     M2 N nucl.     TTCTTCCACATGTTCAAAAAACATGAATGTGCCTCGTTCAGATACGGAACTATTGTTTCC
     M3 N nucl.     TTCTTCCACATGTTCAAAAAACATGAATGTGCCTCGTTCAGATACGGAACTATTGTTTCC
     M4 N nucl.     TTCTTCCACATGTTCAAAAAACATGAATGTGCCTCGTTCAGATACGGAACTATTGTTTCC

                    661                                                 720
GenBank N nucl.     AGATTCAAAGATTGTGCTGCATTGGCAACATTTGGACACCTCTGCAAAATAACCGGAATG
     HR N nucl.     AGATTCAAAGATTGTGCTGCATTGGCAACATTTGGACACCTCTGCAAAATAACCGGAATG
     M2 N nucl.     AGATTCAAAGATTGTGCTGCATTGGCAACATTTGGACACCTCTGCAAAATAACCGGAATG
     M3 N nucl.     AGATTCAAAGATTGTGCTGCATTGGCAACATTTGGACACCTCTGCAAAATAACCGGAATG
     M4 N nucl.     AGATTCAAAGATTGTGCTGCATTGGCAACATTTGGACACCTCTGCAAAATAACCGGAATG

                    721                                                 780
GenBank N nucl.     TCTACAGAAGATGTAACGACCTGGATCTTGAACCGAGAAGTTGCAGATGAAATGGTCCAA
     HR N nucl.     TCTACAGAAGATGTAACGACCTGGATCTTGAACCGAGAAGTTGCAGATGAGATGGTCCAA
     M2 N nucl.     TCTACAGAAGATGTAACGACCTGGATCTTGAACCGAGAAGTTGCAGATGAGATGGTCCAA
     M3 N nucl.     TCTACAGAAGATGTAACGACCTGGATCTTGAACCGAGAAGTTGCAGATGAGATGGTCCAA
     M4 N nucl.     TCTACAGAAGATGTAACGACCTGGATCTTGAACCGAGAAGTTGCAGATGAGATGGTCCAA

                    781                                                 840
GenBank N nucl.     ATGATGCTTCCAGGCCAAGAAATTGACAAGGCCGATTCATACATGCCTTATTTGATCGAC
     HR N nucl.     ATGATGCTTCCAGGCCAAGAAATTGACAAGGCCGATTCATACATGCCTTATTTGATCGAC
     M2 N nucl.     ATGATGCTTCCAGGCCAAGAAATTGACAAGGCCGATTCATACATGCCTTATTTGATCGAC
     M3 N nucl.     ATGATGCTTCCAGGCCAAGAAATTGACAAGGCCGATTCATACATGCCTTATTTGATCGAC
     M4 N nucl.     ATGATGCTTCCAGGCCAAGAAATTGACAAGGCCGATTCATACATGCCTTATTTGATCGAC

                    841                                                 900
GenBank N nucl.     TTTGGATTGTCTTCTAAGTCTCCATATTCTTCCGTCAAAAACCCTGCCTTCCACTTCTGG
     HR N nucl.     TTTGGATTGTCTTCTAAGTCTCCATATTCTTCCGTCAAAAACCCTGCCTTCCACTTCTGG
     M2 N nucl.     TTTGGATTGTCTTCTAAGTCTCCATATTCTTCCGTCAAAAACCCTGCCTTCCACTTCTGG
     M3 N nucl.     TTTGGATTGTCTTCTAAGTCTCCATATTCTTCCGTCAAAAACCCTGCCTTCCACTTCTGG
     M4 N nucl.     TTTGGATTGTCTTCTAAGTCTCCATATTCTTCCGTCAAAAACCCTGCCTTCCACTTCTGG
```

FIGURE 14-2

```
                    901                                                 960
GenBank N nucl.     GGGCAATTGACAGCTCTTCTGCTCAGATCCACCAGAGCAAGGAATGCCCGACAGCCTGAT
     HR N nucl.     GGGCAATTGACAGCTCTTCTGCTCAGATCCACCAGAGCAAGGAATGCCCGACAGCCTGAT
     M2 N nucl.     GGGCAATTGACAGCTCTTCTGCTCAGATCTACCAGAGCAAGGAATGCCCGACAGCCTGAT
     M3 N nucl.     GGGCAATTGACAGCTCTTCTGCTCAGATCCACCAGAGCAAGGAATGCCCGACAGCCTGAT
     M4 N nucl.     GGGCAATTGAC.............................................T

                    961                                                 1020
GenBank N nucl.     GACATTGAGTATACATCTCTTACTACAGCAGGTTTGTTGTACGCTTATGCAGTAGGATCC
     HR N nucl.     GACATTGAGTATACATCTCTTACTACAGCAGGTTTGTTGTACGCTTATGCAGTAGGATCC
     M2 N nucl.     GACATTGAGTATACATCTCTTACTACAGCAGGTTTGTTGTACGCTTATGCAGTAGGATCC
     M3 N nucl.     GACATTGAGTATACATCTCTTACTACAGCAGGTTTGTTGTACGCTTATGCAGTAGGATCC
     M4 N nucl.     GACATTGAGTATACATCTCNTACTACAGCAGGTTTGTTGTACGCTTATGCAGTAGGATCC

                    1021                                                1080
GenBank N nucl.     TCTGCCGACTTGGCACAACAGTTTTGTGTTGGAGATAACAAATACACTCCAGATGATAGT
     HR N nucl.     TCTGCTGACTTGGCACAACAGTTTTGTGTTGGAGATAGCAAATACACTCCAGATGATAGT
     M2 N nucl.     TCTGCTGACTTGGCACAACAGTTTTGTGTTGGAGATAGCAAATACACTCCAGATGATAGT
     M3 N nucl.     TCTGCTGACTTGGCACAACAGTTTTGTGTTGGAGATAGCAAATACACTCCAGATGATAGT
     M4 N nucl.     TCTGCTGACTTGGCACANCAGTTTTGTGTTGGAGATAGCAAATACACTCCAGATGATAGT

                    1081                                                1140
GenBank N nucl.     ACCGGAGGATTGACGACTAATGCACCGCCACAAGGCAGAGATGTGGTCGAATGGCTCGGA
     HR N nucl.     ACCGGAGGATTGACGACTAATGCACCGCCACAAGGCAGAGATGTGGTCGAATGGCTCGGA
     M2 N nucl.     ACCGGAGGATTGACGACTAATGCACCGCCACAAGGCAGAGATGTGGTCGAATGGCTCGGA
     M3 N nucl.     ACCGGAGGATTGACGACTAATGCACCGCCACAAGGCAGAGATGTGGTCGAATGGCTCGGA
     M4 N nucl.     ACCGGAGGATTGACGACTAATGCACCGCCACAAGGCAGAGATGTGGTCGAATGGCTCGGA

                    1141                                                1200
GenBank N nucl.     TGGTTTGAAGATCAAAACAGAAAACCGACTCCTGATATGATGCAGTATGCGAAAAGAGCA
     HR N nucl.     TGGTTTGAAGATCAAAACAGAAAACCGACTCCTGATATGATGCAGTATGCGAAACGAGCA
     M2 N nucl.     TGGTTTGAAGATCAAAACAGAAAACCGACTCCTGATATGATGCAGTATGCGAAACGAGCA
     M3 N nucl.     TGGTTTGAAGATCAAAACAGAAAACCGACTCCTGATATGATGCAGTATGCGAAACGAGCA
     M4 N nucl.     TGGTTTGAAGATCAAAACAGAAAACCGACTCCTGATATGATGCAGTATGCGAAACGAGCA

                    1201                                                1260
GenBank N nucl.     GTCATGTCACTGCAAGGCCTAAGAGAGAAGACAATTGGCAAGTATGCTAAGTCAGAATTT
     HR N nucl.     GTCATGTCACTGCAAGGCCTAAGAGAGAAGACAATTGGCAAGTATGCTAAGTCAGAATTT
     M2 N nucl.     GTCATGTCACTGCAAGGCCTAAGAGAGAAGACAATTGGCAAGTATGCTAAGTCAGAATTT
     M3 N nucl.     GTCATGTCACTGCAAGGCCTAAGAGAGAAGACAATTGGCAAGTATGCTAAGTCAGAATTT
     M4 N nucl.     GTCATGTCACTGCAAGGCCTAAGAGAGAAGACAATTGGCAAGTATGCTAAGTCAGAATTT

                    1261   1269
GenBank N nucl.     GACAAATGA
     HR N nucl.     GACAAATGA
     M2 N nucl.     GACAAATGA
     M3 N nucl.     GACAAATGA
     M4 N nucl.     GACAAATGA
```

FIGURE 14-3

```
                    1                                                   60
GenBank N a.a.      MSVTVKRIIDNTVIVPKLPANEDPVEYPADYFRKSKEIPLYINTTKSLSDLRGYVYQGLK
     HR N a.a.      MSVTVKRIIANTVIVPKLPANEDPVEYPADYFRKSKEIPLYINTTKSLSDLRGYVYQGLK
     M3 N a.a.      MSVTVKRIIDNTVIVPKLPANEDPVEYPADYFRKSKEIPLYINTTKSLSDLRGYVYQGLK
     M4 N a.a.      ............................................................

                    61                                                  120
GenBank N a.a.      SGNVSIIHVNSYLYGALKDIRGKLDKDWSSFGINIGKAGDTIGIFDLVSLKALDGVLPDG
     HR N a.a.      SGNVSIIHVNSYLYGALKDIRGKLDKDWSSFGINIGKAGDTIGIFDLVSLKALDGVLPDG
     M3 N a.a.      SGNVSIIHVNSYLYGALKDIRGKLDKDWSSFGINIGKAGDTIGIFDLVSLKALDGVLPDG
     M4 N a.a.      ....SIIHVNSYLYGALKDIRGKLDKDWSSFGINIGKAGDTIGIFDLVSLKALDGVLPDG

                    121                                                 180
GenBank N a.a.      VSDASRTSADDKWLPLYLLGLYRVGRTQMPEYRKKLMDGLTNQCKMINEQFEPLVPEGRD
     HR N a.a.      VSDASRTSADDKWLPLYLLGLYRVGRTQMPEYRKRLMDGLTNQCKMINEQFEPLVPEGRD
     M3 N a.a.      VSDASRTSADDKWLPLYLLGLYRVGRTQMPEYRKRLMDGLTNQCKMINEQFEPLVPEGRD
     M4 N a.a.      VSDASRTSADDKWLPLYLLGLYRVGRTQMPEYRKRLMDGLTNQCKMINEQFEPLVPEGRD

                    181                                                 240
GenBank N a.a.      IFDVWGNDSNYTKIVAAVDMFFHMFKKHECASFRYGTIVSRFKDCAALATFGHLCKITGM
     HR N a.a.      IFDVWGNDSNYTKIVAAVDMFFHMFKKHECASFRYGTIVSRFKDCAALATFGHLCKITGM
     M3 N a.a.      IFDVWGNDSNYTKIVAAVDMFFHMFKKHECASFRYGTIVSRFKDCAALATFGHLCKITGM
     M4 N a.a.      IFDVWGNDSNYTKIVAAVDMFFHMFKKHECASFRYGTIVSRFKDCAALATFGHLCKITGM

                    241                                                 300
GenBank N a.a.      STEDVTTWILNREVADEMVQMMLPGQEIDKADSYMPYLIDFGLSSKSPYSSVKNPAFHFW
     HR N a.a.      STEDVTTWILNREVADEMVQMMLPGQEIDKADSYMPYLIDFGLSSKSPYSSVKNPAFHFW
     M3 N a.a.      STEDVTTWILNREVADEMVQMMLPGQEIDKADSYMPYLIDFGLSSKSPYSSVKNPAFHFW
     M4 N a.a.      STEDVTTWILNREVADEMVQMMLPGQEIDKADSYMPYLIDFGLSSKSPYSSVKNPAFHFW

                    301                                                 360
GenBank N a.a.      GQLTALLLRSTRARNARQPDDIEYTSLTTAGLLYAYAVGSSADLAQQFCVGDNKYTPDDS
     HR N a.a.      GQLTALLLRSTRARNARQPDDIEYTSLTTAGLLYAYAVGSSADLAQQFCVGDSKYTPDDS
     M3 N a.a.      GQLTALLLRSTRARNARQPDDIEYTSLTTAGLLYAYAVGSSADLAQQFCVGDSKYTPDDS
     M4 N a.a.      GQLT..............DIEYTSXTTAGLLYAYAVGSSADLAXQFCVGDSKYTPDDS

                    361                                                 420
GenBank N a.a.      TGGLTTNAPPQGRDVVEWLGWFEDQNRKPTPDMMQYAKRAVMSLQGLREKTIGKYAKSEF
     HR N a.a.      TGGLTTNAPPQGRDVVEWLGWFEDQNRKPTPDMMQYAKRAVMSLQGLREKTIGKYAKSEF
     M3 N a.a.      TGGLTTNAPPQGRDVVEWLGWFEDQNRKPTPDMMQYAKRAVMSLQGLREKTIGKYAKSEF
     M4 N a.a.      TGGLTTNAPPQGRDVVEWLGWFEDQNRKPTPDMMQYAKRAVMSLQGLREKTIGKYAKSEF

                    421  423
GenBank N a.a.      DK.
     HR N a.a.      DK.
     M3 N a.a.      DK.
     M4 N a.a.      DK.
```

FIGURE 15

```
                    1                                                   60
GenBank P nucl.     ATGGATAATCTCACAAAAGTTCGTGAGTATCTCAAGTCCTATTCTCGTCTGGATCAGGCG
     HR P nucl.     ATGGATAATCTCACAAAAGTTCGTGAGTATCTCAAGTCCTATTCTCGTCTAGATCAGGCG
     M2 P nucl.     ATGGATAATCTCACAAAAGTTCGTGAGTATCTCAAGTCCTATTCTCGTCTAGATCAGGCG
     M3 P nucl.     ATGGATAATCTCACAAAAGTTCGTGAGTATCTCAAGTCCTATTCTCGTCTAGATCAGGCG
     M4 P nucl.     ATGGATAATCTCACAAAAGTTCGTGAGTATCTCAAGTCCTATTCTCGTCTAGATCAGGCG

                    61                                                  120
GenBank P nucl.     GTAGGAGAGATAGATGAGATCGAAGCACAACGAGCTGAAAAGTCCAATTATGAGTTGTTC
     HR P nucl.     GTAGGAGAGATAGATGAGATCGAAGCACAACGAGCTGAAAAGTCCAATTATGAGTTGTTC
     M2 P nucl.     GTAGGAGAGATAGATGAGATCGAAGCACAACGAGCTGAAAAGTCCAATTATGAGTTGTTC
     M3 P nucl.     GTAGGAGAGATAGATGAGATCGAAGCACAACGAGCTGAAAAGTCCAATTATGAGTTGTTC
     M4 P nucl.     GTAGGAGAGATAGATGAGATCGAAGCACAACGAGCTGAAAAGTCCAATTATGAGTTGTTC

                    121                                                 180
GenBank P nucl.     CAAGAGGATGGAGTGGAAGAGCATACTAAGCCCTCTTATTTTCAGGCAGCAGATGATTCT
     HR P nucl.     CAAGAGGACGGAGTGGAAGAGCATACTAGGCCCTCTTATTTTCAGGCAGCAGATGATTCT
     M2 P nucl.     CAAGAGGACGGAGTGGAAGAGCATACTAGGCCCTCTTATTTTCAGGCAGCAGATGATTCT
     M3 P nucl.     CAAGAGGACGGAGTGGAAGAGCATACTAGGCCCTCTTATTTTCAGGCAGCAGATGATTCT
     M4 P nucl.     CAAGAGGACGGAGTGGAAGAGCATACTAGGCCCTCTTATTTTCAGGCAGCAGATGATTCT

                    181                                                 240
GenBank P nucl.     GACACAGAATCTGAACCAGAAATTGAAGACAATCAAGGTTTGTATGCACAGGATCCAGAA
     HR P nucl.     GACACAGAATCTGAACCAGAAATTGAAGACAATCAAGGCTTGTATGTACCAGATCCGGAA
     M2 P nucl.     GACACAGAATCTGAACCAGAAATTGAAGACAATCAAGGCTTGTATGTACCAGATCCGGAA
     M3 P nucl.     GACACAGAATCTGAACCAGAAATTGAAGACAATCAAGGCTTGTATGTACCAGATCCGGAA
     M4 P nucl.     GACACAGAATCTGAACCAGAAATTGAAGACAATCAAGGCTTGTATGTACCAGATCCGGAA

                    241                                                 300
GenBank P nucl.     GCTGAGCAAGTTGAAGGCTTTATACAGGGGCCTTTAGATGACTATGCAGATGAGGAAGTG
     HR P nucl.     GCTGAGCAAGTTGAAGGCTTTATACAGGGGCCTTTAGATGACTATGCGGATGAGGACGTG
     M2 P nucl.     GCTGAGCAAGTTGAAGGCTTTATACAGGGGCCTTTAGATGACTATGCGGATGAGGACGTG
     M3 P nucl.     GCTGAGCAAGTTGAAGGCTTTATACAGGGGCCTTTAGATGACTATGCGGATGAGGACGTG
     M4 P nucl.     GCTGAGCAAGTTGAAGGCTTTATACAGGGGCCTTTAGATGACTATGCGGATGAGGACGTG

                    301                                                 360
GenBank P nucl.     GATGTTGTATTTACTTCGGACTGGAAACCACCTGAGCTTGAATCTGACGAGCATGGAAAG
     HR P nucl.     GATGTTGTATTCACTTCGGACTGGAAACAGCCTGAGCTTGAATCCGACGAGCATGGAAAG
     M2 P nucl.     GATGTTGTATTCACTTCGGACTGGAAACAGCCTGAGCTTGAATCCGACGAGCATGGAAAG
     M3 P nucl.     GATGTTGTATTCACTTCGGACTGGAAACAGCCTGAGCTTGAATCCGACGAGCATGGAAAG
     M4 P nucl.     GATGTTGTATTCACTTCGGACTGGAAACAGCCTGAGCTTGAATCCGACGAGCATGGAAAG

                    361                                                 420
GenBank P nucl.     ACCTTACGGTTGACATCGCCAGAGGGTTTAAGTGGAGAGCAGAAATCCCAGTGGCTTTCG
     HR P nucl.     ACCTTACGGTTGACATTGCCAGAGGGTTTAAGTGGAGAGCAGAAATCCCAGTGGCTTTTG
     M2 P nucl.     ACCTTACGGTTGACATTGCCAGAGGGTTTAAGTGGAGAGCAGAAATCCCAGTGGCTTTTG
     M3 P nucl.     ACCTTACGGTTGACATTGCCAGAGGGTTTAAGTGGAGAGCAGAAATCCCAGTGGCTTTTG
     M4 P nucl.     ACCTTACGGTTGACATTGCCAGAGGGTTTAAGTGGAGAGCAGAAATCCCAGTGGCTTTTG
```

FIGURE 16-1

```
                    421                                                 480
GenBank P nucl.     ACGATTAAAGCAGTCGTGCAAAGTGCCAAATACTGGAATCTGGCAGAGTGCACATTTGAA
     HR P nucl.     ACGATTAAAGCAGTCGTTCAAAGTGCCAAACACTGGAATCTGGCAGAGTGCACATTTGAA
     M2 P nucl.     ACGATTAAAGCAGTCGTTCAAAGTGCCAAACACTGGAATCTGGCAGAGTGCACATTTGAA
     M3 P nucl.     ACGATTAAAGCAGTCGTTCAAAGTGCCAAACACTGGAATCTGGCAGAGTGCACATTTGAA
     M4 P nucl.     ACGATTAAAGCAGTCGTTCAAAGTGCCAAACACTGGAATCTGGCAGAGTGCACATTTGAA

                    481                                                 540
GenBank P nucl.     GCATCGGGAGAAGGGGTCATTATGAAGCAGCGCCAGATAACTCCGGATGTATATAAGGTC
     HR P nucl.     GCATCGGGAGAAGGGGTCATCATAAAAAAGCGCCAGATAACTCCGGATGTATATAAGGTC
     M2 P nucl.     GCATCGGGAGAAGGGGTCATCATAAAAAAGCGCCAGATAACTCCGGATGTATATAAGGTC
     M3 P nucl.     GCATCGGGAGAAGGGGTCATCATAAAAAAGCGCCAGATAACTCCGGATGTATATAAGGTC
     M4 P nucl.     GCATCGGGAGAAGGGGTCATCATAAAAAAGCGCCAGATAACTCCGGATGTATATAAGGTC

                    541                                                 600
GenBank P nucl.     ACTCCAGTGATGAACACACATCCGTCCCAATCAGAAGCAGTATCAGATGTTTGGTCTCTC
     HR P nucl.     ACTCCAGTGATGAACACACATCCGTCCCAATCAGAAGCCGTATCAGATGTTTGGTCTCTC
     M2 P nucl.     ACTCCAGTGATGAACACACATCCGTCCCAA.............................
     M3 P nucl.     ACTCCAGTGATGAACACACATCCGTCCCAATCGGAAGCCGTATCAGATGTTTGGTCTCTC
     M4 P nucl.     ACTCCAGTGATGAACACACATCCGTCCCAATCAGAAGCCGTATCAGATGTTTGGTCTCTC

                    601                                                 660
GenBank P nucl.     TCAAAGACATCCATGACTTTCCAACCCAAGAAAGCAAGTCTTCAGCCTCTCACCATATCC
     HR P nucl.     TCAAAGACATCCATGACTTTCCAACCCAAGAAAGCAAGTCTTCAGCCTCTCACCATATCC
     M2 P nucl.     ............................................................
     M3 P nucl.     TCAAAGACATCCATGACTTTCCAACCCAAGAAAGCAAGTCTTCAGCCTCTCACCATATCC
     M4 P nucl.     TCAAAGACATCCATGACTTTCCAACCCAAGAAAGCAAGTCTTCAGCCTCTCACCATATCC

                    661                                                 720
GenBank P nucl.     TTGGATGAATTGTTCTCATCTAGAGGAGAGTTCATCTCTGTCGGAGGTGACGGACGAATG
     HR P nucl.     TTGGATGAATTGTTCTCATCTAGAGGAGAATTCATCTCTGTCGGAGGTAACGGACGAATG
     M2 P nucl.     ............................................................
     M3 P nucl.     TTGGATGAATTGTTCTCATCTAGAGGAGAATTCATCTCTGTCGGAGGTAACGGACGAATG
     M4 P nucl.     TTGGATGAATTGTTCTCATCTAGAGGAGAATTCATCTCTGTCGGAGGTAACGGACGAATG

                    721                                                 780
GenBank P nucl.     TCTCATAAAGAGGCCATCCTGCTCGGCCTGAGATACAAAAAGTTGTACAATCAGGCGAGA
     HR P nucl.     TCTCATAAAGAGGCCATCCTGCTCGGTCTGAGGTACAAAAAGTTGTACAATCAGGCGAGA
     M2 P nucl.     ............................................................
     M3 P nucl.     TCTCATAAAGAGGCCATCCTGCTCGGTCTGAGGTACAAAAAGTTGTACAATCAGGCGAGA
     M4 P nucl.     TCTCATAAAGAGGCCATCCTGCTCGGTCTGAGGTACAAAAAGTTGTACAATCAGGCGAGA

                    781           798
GenBank P nucl.     GTCAAATATTCTCTGTAG
     HR P nucl.     GTCAAATATTCTCTGTAG
     M2 P nucl.     ..................
     M3 P nucl.     GTCAAATATTCTCTGTAG
     M4 P nucl.     GTCAAATATTCTCTGTAG
```

FIGURE 16-2

```
                    1                                                    60
GenBank P a.a.      MDNLTKVREYLKSYSRLDQAVGEIDEIEAQRAEKSNYELFQEDGVEEHTKPSYFQAADDS
     HR P a.a.      MDNLTKVREYLKSYSRLDQAVGEIDEIEAQRAEKSNYELFQEDGVEEHTRPSYFQAADDS
     M2 P a.a.      MDNLTKVREYLKSYSRLDQAVGEIDEIEAQRAEKSNYELFQEDGVEEHTRPSYFQAADDS
     M3 P a.a.      MDNLTKVREYLKSYSRLDQAVGEIDEIEAQRAEKSNYELFQEDGVEEHTRPSYFQAADDS
     M4 P a.a.      MDNLTKVREYLKSYSRLDQAVGEIDEIEAQRAEKSNYELFQEDGVEEHTRPSYFQAADDS

                    61                                                   120
GenBank P a.a.      DTESEPEIEDNQGLYAQDPEAEQVEGFIQGPLDDYADEEVDVVFTSDWKPPELESDEHGK
     HR P a.a.      DTESEPEIEDNQGLYVPDPEAEQVEGFIQGPLDDYADEDVDVVFTSDWKQPELESDEHGK
     M2 P a.a.      DTESEPEIEDNQGLYVPDPEAEQVEGFIQGPLDDYADEDVDVVFTSDWKQPELESDEHGK
     M3 P a.a.      DTESEPEIEDNQGLYVPDPEAEQVEGFIQGPLDDYADEDVDVVFTSDWKQPELESDEHGK
     M4 P a.a.      DTESEPEIEDNQGLYVPDPEAEQVEGFIQGPLDDYADEDVDVVFTSDWKQPELESDEHGK

                    121                                                  180
GenBank P a.a.      TLRLTSPEGLSGEQKSQWLSTIKAVVQSAKYWNLAECTFEASGEGVIMKERQITPDVYKV
     HR P a.a.      TLRLTLPEGLSGEQKSQWLLTIKAVVQSAKHWNLAECTFEASGEGVIIKKRQITPDVYKV
     M2 P a.a.      TLRLTLPEGLSGEQKSQWLLTIKAVVQSAKHWNLAECTFEASGEGVIIKKRQITPDVYKV
     M3 P a.a.      TLRLTLPEGLSGEQKSQWLLTIKAVVQSAKHWNLAECTFEASGEGVIIKKRQITPDVYKV
     M4 P a.a.      TLRLTLPEGLSGEQKSQWLLTIKAVVQSAKHWNLAECTFEASGEGVIIKKRQITPDVYKV

                    181                                                  240
GenBank P a.a.      TPVMNTHPSQSEAVSDVWSLSKTSMTFQPKKASLQPLTISLDELFSSRGEFISVGGDGRM
     HR P a.a.      TPVMNTHPSQSEAVSDVWSLSKTSMTFQPKKASLQPLTISLDELFSSRGEFISVGGNGRM
     M2 P a.a.      TPVMNTHPSQ..................................................
     M3 P a.a.      TPVMNTHPSQSEAVSDVWSLSKTSMTFQPKKASLQPLTISLDELFSSRGEFISVGGNGRM
     M4 P a.a.      TPVMNTHPSQSEAVSDVWSLSKTSMTFQPKKASLQPLTISLDELFSSRGEFISVGGNGRM

                    241                 266
GenBank P a.a.      SHKEAILLGLRYKKLYNQARVKYSL
     HR P a.a.      SHKEAILLGLRYKKLYNQARVKYSL
     M2 P a.a.      .........................
     M3 P a.a.      SHKEAILLGLRYKKLYNQARVKYSL
     M4 P a.a.      SHKEAILLGLRYKKLYNQARVKYSL
```

FIGURE 17

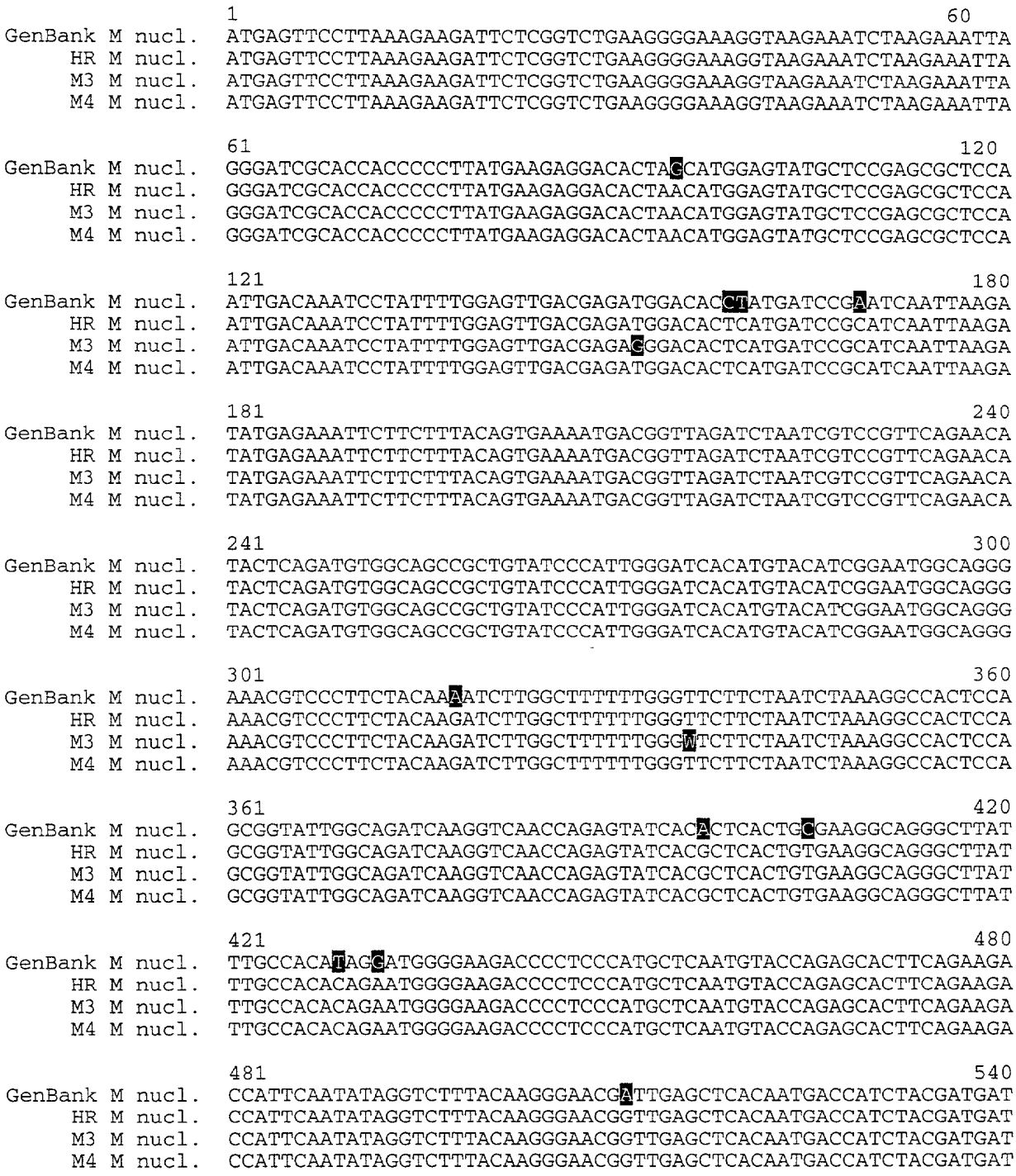

1 60
GenBank M nucl. ATGAGTTCCTTAAAGAAGATTCTCGGTCTGAAGGGGAAAGGTAAGAAATCTAAGAAATTA
HR M nucl. ATGAGTTCCTTAAAGAAGATTCTCGGTCTGAAGGGGAAAGGTAAGAAATCTAAGAAATTA
M3 M nucl. ATGAGTTCCTTAAAGAAGATTCTCGGTCTGAAGGGGAAAGGTAAGAAATCTAAGAAATTA
M4 M nucl. ATGAGTTCCTTAAAGAAGATTCTCGGTCTGAAGGGGAAAGGTAAGAAATCTAAGAAATTA
61 120
GenBank M nucl. GGGATCGCACCACCCCCTTATGAAGAGGACACTAGCATGGAGTATGCTCCGAGCGCTCCA
HR M nucl. GGGATCGCACCACCCCCTTATGAAGAGGACACTAACATGGAGTATGCTCCGAGCGCTCCA
M3 M nucl. GGGATCGCACCACCCCCTTATGAAGAGGACACTAACATGGAGTATGCTCCGAGCGCTCCA
M4 M nucl. GGGATCGCACCACCCCCTTATGAAGAGGACACTAACATGGAGTATGCTCCGAGCGCTCCA
121 180
GenBank M nucl. ATTGACAAATCCTATTTTGGAGTTGACGAGATGGACACCTATGATCCGAATCAATTAAGA
HR M nucl. ATTGACAAATCCTATTTTGGAGTTGACGAGATGGACACTCATGATCCGCATCAATTAAGA
M3 M nucl. ATTGACAAATCCTATTTTGGAGTTGACGAGAGGGACACTCATGATCCGCATCAATTAAGA
M4 M nucl. ATTGACAAATCCTATTTTGGAGTTGACGAGATGGACACTCATGATCCGCATCAATTAAGA
181 240
GenBank M nucl. TATGAGAAATTCTTCTTTACAGTGAAAATGACGGTTAGATCTAATCGTCCGTTCAGAACA
HR M nucl. TATGAGAAATTCTTCTTTACAGTGAAAATGACGGTTAGATCTAATCGTCCGTTCAGAACA
M3 M nucl. TATGAGAAATTCTTCTTTACAGTGAAAATGACGGTTAGATCTAATCGTCCGTTCAGAACA
M4 M nucl. TATGAGAAATTCTTCTTTACAGTGAAAATGACGGTTAGATCTAATCGTCCGTTCAGAACA
241 300
GenBank M nucl. TACTCAGATGTGGCAGCCGCTGTATCCCATTGGGATCACATGTACATCGGAATGGCAGGG
HR M nucl. TACTCAGATGTGGCAGCCGCTGTATCCCATTGGGATCACATGTACATCGGAATGGCAGGG
M3 M nucl. TACTCAGATGTGGCAGCCGCTGTATCCCATTGGGATCACATGTACATCGGAATGGCAGGG
M4 M nucl. TACTCAGATGTGGCAGCCGCTGTATCCCATTGGGATCACATGTACATCGGAATGGCAGGG
301 360
GenBank M nucl. AAACGTCCCTTCTACAAAATCTTGGCTTTTTTGGGTTCTTCTAATCTAAAGGCCACTCCA
HR M nucl. AAACGTCCCTTCTACAAGATCTTGGCTTTTTTGGGTTCTTCTAATCTAAAGGCCACTCCA
M3 M nucl. AAACGTCCCTTCTACAAGATCTTGGCTTTTTTGGGWTCTTCTAATCTAAAGGCCACTCCA
M4 M nucl. AAACGTCCCTTCTACAAGATCTTGGCTTTTTTGGGTTCTTCTAATCTAAAGGCCACTCCA
361 420
GenBank M nucl. GCGGTATTGGCAGATCAAGGTCAACCAGAGTATCACACTCACTGCGAAGGCAGGGCTTAT
HR M nucl. GCGGTATTGGCAGATCAAGGTCAACCAGAGTATCACGCTCACTGTGAAGGCAGGGCTTAT
M3 M nucl. GCGGTATTGGCAGATCAAGGTCAACCAGAGTATCACGCTCACTGTGAAGGCAGGGCTTAT
M4 M nucl. GCGGTATTGGCAGATCAAGGTCAACCAGAGTATCACGCTCACTGTGAAGGCAGGGCTTAT
421 480
GenBank M nucl. TTGCCACATAGCATGGGGAAGACCCCTCCCATGCTCAATGTACCAGAGCACTTCAGAAGA
HR M nucl. TTGCCACACAGAATGGGGAAGACCCCTCCCATGCTCAATGTACCAGAGCACTTCAGAAGA
M3 M nucl. TTGCCACACAGAATGGGGAAGACCCCTCCCATGCTCAATGTACCAGAGCACTTCAGAAGA
M4 M nucl. TTGCCACACAGAATGGGGAAGACCCCTCCCATGCTCAATGTACCAGAGCACTTCAGAAGA
481 540
GenBank M nucl. CCATTCAATATAGGTCTTTACAAGGGAACGATTGAGCTCACAATGACCATCTACGATGAT
HR M nucl. CCATTCAATATAGGTCTTTACAAGGGAACGGTTGAGCTCACAATGACCATCTACGATGAT
M3 M nucl. CCATTCAATATAGGTCTTTACAAGGGAACGGTTGAGCTCACAATGACCATCTACGATGAT
M4 M nucl. CCATTCAATATAGGTCTTTACAAGGGAACGGTTGAGCTCACAATGACCATCTACGATGAT

FIGURE 18-1

```
                  541                                                   600
GenBank M nucl.   GAGTCACTGGAAGCAGCTCCTATGATCTGGGATCATTTCAATTCTTCCAAATTTTCTGAT
     HR M nucl.   GAGTCACTGGAAGCAGCTCCTATGATCTGGGATCATTTCAATTCTTCCAAATTTTCTGAT
     M3 M nucl.   GAGTCACTGGAAGCAGCTCCTATGATCTGGGATCATTTCAATTCTTCCAAATTTTCTGAT
     M4 M nucl.   GAGTCACTGGAAGCAGCTCCTATGATCTGGGATCATTTCAATTCTTCCAAATTTTCTGAT

                  601                                                   660
GenBank M nucl.   TTCAGAGAGAAGGCCTTAATGTTTGGCCTGATTGTCGAGAAAAAGGCATCTGGAGCGTGG
     HR M nucl.   TTCAGAGAGAAGGCCTTAATGTTTGGCCTGATTGTCGAGAAAAAGGCATCTGGAGCTTGG
     M3 M nucl.   TTCAGAGAGAAGGCCTTAATGTTTGGCCTGATTGTCGAGAAAAAGGCATCTGGAGCTTGG
     M4 M nucl.   TTCAGAGAGAAGGCCTTAATGTTTGGCCTGATTGTCGAGAAAAAGGCATCTGGAGCTTGG

                  661                          690
GenBank M nucl.   GTCCTGGATTCTATCAGCCACTTCAAATGA
     HR M nucl.   GTCCTGGATTCTGTCAGCCACTTCAAATGA
     M3 M nucl.   GTCCTGGATTCTGTCAGCCACTTCAAATGA
     M4 M nucl.   GTCCTGGATTCTGTCAGCCACTTCAAATGA
```

FIGURE 18-2

```
                    1                                                    60
GenBank M a.a.      MSSLKKILGLKGKGKKSKKLGIAPPPYEEDTSMEYAPSAPIDKSYFGVDEMDTYDPNQLR
     HR M a.a.      MSSLKKILGLKGKGKKSKKLGIAPPPYEEDTNMEYAPSAPIDKSYFGVDEMDTHDPHQLR
     M4 M a.a.      MSSLKKILGLKGKGKKSKKLGIAPPPYEEDTNMEYAPSAPIDKSYFGVDEMDTHDPHQLR
     M3 M a.a.      MSSLKKILGLKGKGKKSKKLGIAPPPYEEDTNMEYAPSAPIDKSYFGVDERDTHDPHQLR

                    61                                                   120
GenBank M a.a.      YEKFFFTVKMTVRSNRPFRTYSDVAAAVSHWDHMYIGMAGKRPFYKILAFLGSSNLKATP
     HR M a.a.      YEKFFFTVKMTVRSNRPFRTYSDVAAAVSHWDHMYIGMAGKRPFYKILAFLGSSNLKATP
     M4 M a.a.      YEKFFFTVKMTVRSNRPFRTYSDVAAAVSHWDHMYIGMAGKRPFYKILAFLGSSNLKATP
     M3 M a.a.      YEKFFFTVKMTVRSNRPFRTYSDVAAAVSHWDHMYIGMAGKRPFYKILAFLGSSNLKATP

                    121                                                  180
GenBank M a.a.      AVLADQGQPEYHTHCEGRAYLPHRMGKTPPMLNVPEHFRRPFNIGLYKGTIELTMTIYDD
     HR M a.a.      AVLADQGQPEYHAHCEGRAYLPHRMGKTPPMLNVPEHFRRPFNIGLYKGTVELTMTIYDD
     M4 M a.a.      AVLADQGQPEYHAHCEGRAYLPHRMGKTPPMLNVPEHFRRPFNIGLYKGTVELTMTIYDD
     M3 M a.a.      AVLADQGQPEYHAHCEGRAYLPHRMGKTPPMLNVPEHFRRPFNIGLYKGTVELTMTIYDD

                    181                                  230
GenBank M a.a.      ESLEAAPMIWDHFNSSKFSDFREKALMFGLIVEKKASGAWVLDSISHFK.
     HR M a.a.      ESLEAAPMIWDHFNSSKFSDFREKALMFGLIVEKKASGAWVLDSVSHFK.
     M4 M a.a.      ESLEAAPMIWDHFNSSKFSDFREKALMFGLIVEKKASGAWVLDSVSHFK.
     M3 M a.a.      ESLEAAPMIWDHFNSSKFSDFREKALMFGLIVEKKASGAWVLDSVSHFK.
```

FIGURE 19

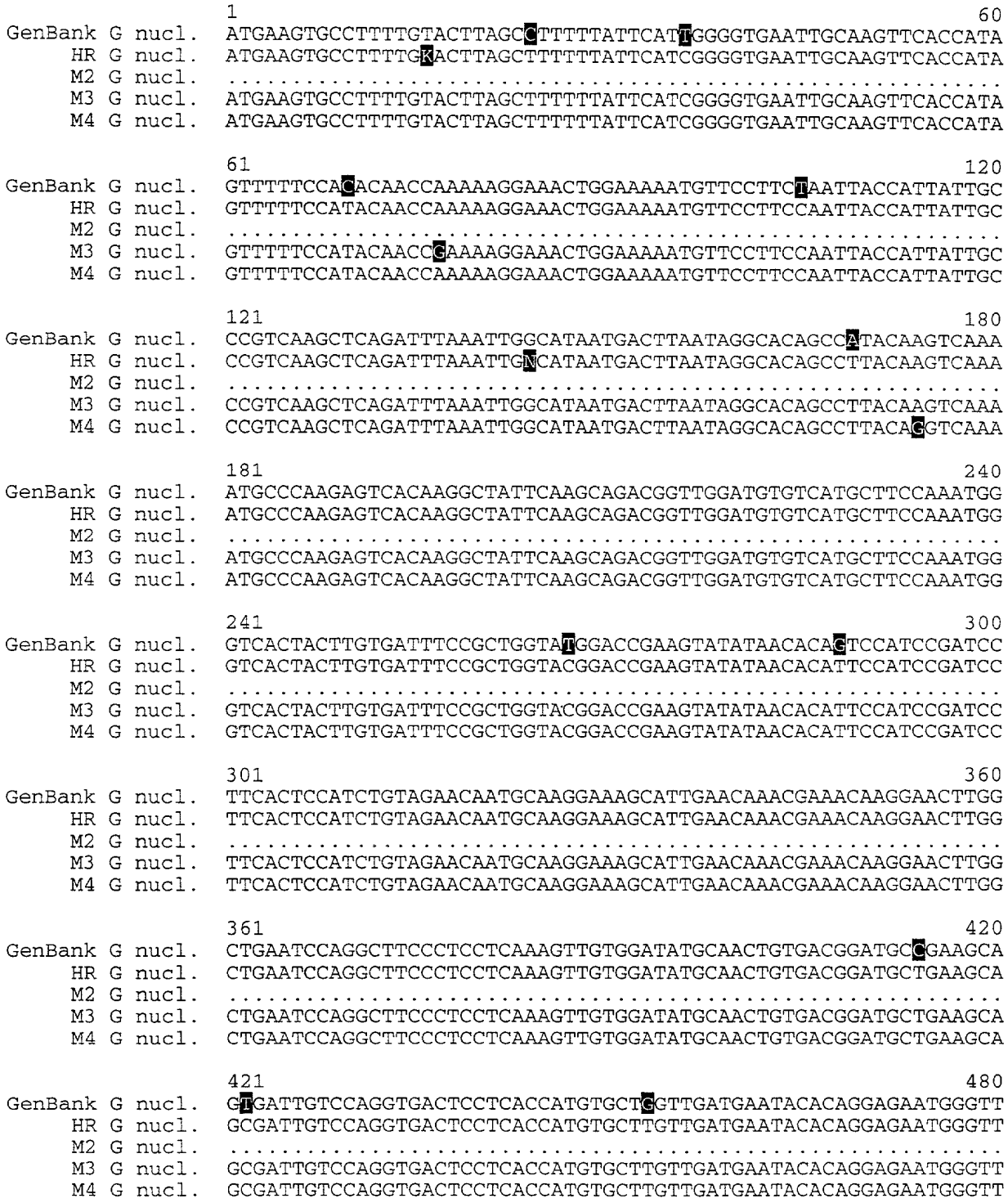

1 60
GenBank G nucl. ATGAAGTGCCTTTTGTACTTAGCCTTTTTATTCATTGGGGTGAATTGCAAGTTCACCATA
HR G nucl. ATGAAGTGCCTTTTGKACTTAGCTTTTTTATTCATCGGGGTGAATTGCAAGTTCACCATA
M2 G nucl. ....
M3 G nucl. ATGAAGTGCCTTTTGTACTTAGCTTTTTTATTCATCGGGGTGAATTGCAAGTTCACCATA
M4 G nucl. ATGAAGTGCCTTTTGTACTTAGCTTTTTTATTCATCGGGGTGAATTGCAAGTTCACCATA
61 120
GenBank G nucl. GTTTTTCCACACAACCAAAAAGGAAACTGGAAAAATGTTCCTTCTAATTACCATTATTGC
HR G nucl. GTTTTTCCATACAACCAAAAAGGAAACTGGAAAAATGTTCCTTCCAATTACCATTATTGC
M2 G nucl. ....
M3 G nucl. GTTTTTCCATACAACCGAAAAGGAAACTGGAAAAATGTTCCTTCCAATTACCATTATTGC
M4 G nucl. GTTTTTCCATACAACCAAAAAGGAAACTGGAAAAATGTTCCTTCCAATTACCATTATTGC
121 180
GenBank G nucl. CCGTCAAGCTCAGATTTAAATTGGCATAATGACTTAATAGGCACAGCCATACAAGTCAAA
HR G nucl. CCGTCAAGCTCAGATTTAAATTGNCATAATGACTTAATAGGCACAGCCTTACAAGTCAAA
M2 G nucl. ....
M3 G nucl. CCGTCAAGCTCAGATTTAAATTGGCATAATGACTTAATAGGCACAGCCTTACAAGTCAAA
M4 G nucl. CCGTCAAGCTCAGATTTAAATTGGCATAATGACTTAATAGGCACAGCCTTACAGGTCAAA
181 240
GenBank G nucl. ATGCCCAAGAGTCACAAGGCTATTCAAGCAGACGGTTGGATGTGTCATGCTTCCAAATGG
HR G nucl. ATGCCCAAGAGTCACAAGGCTATTCAAGCAGACGGTTGGATGTGTCATGCTTCCAAATGG
M2 G nucl. ....
M3 G nucl. ATGCCCAAGAGTCACAAGGCTATTCAAGCAGACGGTTGGATGTGTCATGCTTCCAAATGG
M4 G nucl. ATGCCCAAGAGTCACAAGGCTATTCAAGCAGACGGTTGGATGTGTCATGCTTCCAAATGG
241 300
GenBank G nucl. GTCACTACTTGTGATTTCCGCTGGTATGGACCGAAGTATATAACACAGTCCATCCGATCC
HR G nucl. GTCACTACTTGTGATTTCCGCTGGTACGGACCGAAGTATATAACACATTCCATCCGATCC
M2 G nucl. ....
M3 G nucl. GTCACTACTTGTGATTTCCGCTGGTACGGACCGAAGTATATAACACATTCCATCCGATCC
M4 G nucl. GTCACTACTTGTGATTTCCGCTGGTACGGACCGAAGTATATAACACATTCCATCCGATCC
301 360
GenBank G nucl. TTCACTCCATCTGTAGAACAATGCAAGGAAAGCATTGAACAAACGAAACAAGGAACTTGG
HR G nucl. TTCACTCCATCTGTAGAACAATGCAAGGAAAGCATTGAACAAACGAAACAAGGAACTTGG
M2 G nucl. ....
M3 G nucl. TTCACTCCATCTGTAGAACAATGCAAGGAAAGCATTGAACAAACGAAACAAGGAACTTGG
M4 G nucl. TTCACTCCATCTGTAGAACAATGCAAGGAAAGCATTGAACAAACGAAACAAGGAACTTGG
361 420
GenBank G nucl. CTGAATCCAGGCTTCCCTCCTCAAAGTTGTGGATATGCAACTGTGACGGATGCCGAAGCA
HR G nucl. CTGAATCCAGGCTTCCCTCCTCAAAGTTGTGGATATGCAACTGTGACGGATGCTGAAGCA
M2 G nucl. ....
M3 G nucl. CTGAATCCAGGCTTCCCTCCTCAAAGTTGTGGATATGCAACTGTGACGGATGCTGAAGCA
M4 G nucl. CTGAATCCAGGCTTCCCTCCTCAAAGTTGTGGATATGCAACTGTGACGGATGCTGAAGCA
421 480
GenBank G nucl. GTGATTGTCCAGGTGACTCCTCACCATGTGCTGGTTGATGAATACACAGGAGAATGGGTT
HR G nucl. GCGATTGTCCAGGTGACTCCTCACCATGTGCTTGTTGATGAATACACAGGAGAATGGGTT
M2 G nucl. ....
M3 G nucl. GCGATTGTCCAGGTGACTCCTCACCATGTGCTTGTTGATGAATACACAGGAGAATGGGTT
M4 G nucl. GCGATTGTCCAGGTGACTCCTCACCATGTGCTTGTTGATGAATACACAGGAGAATGGGTT

FIGURE 20-1

```
                    481                                                 540
GenBank G nucl.     GATTCACAGTTCATCAACGGAAAATGCAGCAATTACATATGCCCCACTGTCCATAACTCT
     HR G nucl.     GATTCACAGTTCATCAACGGAAAATGCAGCAATGACATATGCCCCACTGTCCATAACTCC
     M2 G nucl.     ............................................................
     M3 G nucl.     GATTCACAGTTCATCAACGGAAAATGCAGCAATGACATATGCCCCACTGTCCATAACTCC
     M4 G nucl.     GATTCACAGTTCATCAACGGAAAATGCAGCAATGACATATGCCCCACTGTCCATAACTCC

                    541                                                 600
GenBank G nucl.     ACAACCTGGCATTCTGACTATAAGGTCAAAGGGCTATGTGATTCTAACCTCATTTCCATG
     HR G nucl.     ACAACCTGGCATTCCGACTATAAGGTCAAAGGGCTATGTGATTCTAACCTCATTTCCATG
     M2 G nucl.     ............................................................
     M3 G nucl.     ACAACCTGGCATTCCGACTATAAGGTCAAAGGGCTATGTGATTCTAACCTCATTTCCATG
     M4 G nucl.     ACAACCTGGCATTCCGACTATAAGGTCAAAGGGCTATGTGATTCTAACCTCATTTCCATG

                    601                                                 660
GenBank G nucl.     GACATCACCTTCTTCTCAGAGGACGGAGAGCTATCATCCCTGGGAAAGGAGGGCACAGGG
     HR G nucl.     GACATCACCTTCTTCTCAGAGGACGGAGAGCTATCATCCCTAGGAAAGGAGGGCACAGGG
     M2 G nucl.     ............................................................
     M3 G nucl.     GACATCACCTTCTTCTCAGAGGACGGAGAGCTATCATCCCTAGGAAAGGAGGGCACAGGG
     M4 G nucl.     GACATCACCTTCTTCTCAGAGGACGGAGAGCTATCATCCCTAGGAAAGGAGGGCACAGGG

                    661                                                 720
GenBank G nucl.     TTCAGAAGTAACTACTTTGCTTATGAAACTGGAGGCAAGGCCTGCAAAATGCAATACTGC
     HR G nucl.     TTCAGAAGTAACTACTTTGCTTATGAAACTGGAGACAAGGCCTGCAAAATGCAGTACTGC
     M2 G nucl.     ............................................................
     M3 G nucl.     TTCAGAAGTAACTACTTTGCTTATGAAACTGGAGACAAGGCCTGCAAAATGCAGTACTGC
     M4 G nucl.     TTCAGAAGTAACTACTTTGCTTATGAAACTGGAGACAAGGCCTGCAAAATGCAGTACTGC

                    721                                                 780
GenBank G nucl.     AAGCATTGGGGAGTCAGACTCCCATCAGGTGTCTGGTTCGAGATGGCTGATAAGGATCTC
     HR G nucl.     AAGCGTTGGGGAGTCAGACTCCCATCAGGTGTCTGGTTCGAGATGGCTGATAAGGATCTC
     M2 G nucl.     ............................................................
     M3 G nucl.     AAGCATTGGGGAGTCAGACTCCCATCAGGTGTCTGGTTCGAGATGGCTGATAAGGATCTC
     M4 G nucl.     AAGCGTTGGGGAGTCAGACTCCCATCAGGTGTCTGGTTCGCGATGGCTGATAAGGATCTC

                    781                                                 840
GenBank G nucl.     TTTGCTGCAGCCAGATTCCCTGAATGCCCAGAAGGGTCAAGTATCTCTGCTCCATCTCAG
     HR G nucl.     TTTGCTGCAGCCAGATTCCCTGAATGCCCAGAAGGGTCAAGTATCTCTGCTCCATCTCAG
     M2 G nucl.     ....................................................CCATCTCAG
     M3 G nucl.     TTTGCTGCAGCCAGATTCCCTGAATGCCCAGAAGGGTCAAGTATCTCTGCTCCATCTCAG
     M4 G nucl.     TTTGCTGCAGCCAGATTCCCTGAATGCCCAGAAGGGTCAAGTATCTCTGCTCCATCTCAG

                    841                                                 900
GenBank G nucl.     ACCTCAGTGGATGTAAGTCTAATTCAGGACGTTGAGAGGATCTTGGATTATTCCCTCTGC
     HR G nucl.     ACCTCAGTGGATGTAAGTCTCATTCAGGACGTTGAGAGGATCTTG..............
     M2 G nucl.     ACCTCAGTGGATGTAAGTCTCATTCAGGACGTTGAGAGGATCTTGGATTATTCCCTCTGC
     M3 G nucl.     ACCTCAGTGGATGTAAGTCTCATTCAGGACGTTGAGAGGATCTTGGATTATTCCCTCTGC
     M4 G nucl.     ACCTCAGTGGATGTAAGTCTCATTCAGGACGTTGAGAGGATCT.................
```

FIGURE 20-2

```
                    901                                                 960
GenBank G nucl.     CAAGAAACCTGGAGCAAAATCAGAGCGGGTCTTCCAATCTCTCCAGTGGATCTCAGCTAT
     HR G nucl.     ............................................................
     M2 G nucl.     CAAGAAACCTGGAGCAAAATCAGAGCGGGTCTTCCCATCTCTCCAGTGGATCTCAGCTAT
     M3 G nucl.     CAAGAAACCTGGAGCAAAATCAGAGCGGGTCTTCCCATCTCTCCAGTGGATCTCAGCTAT
     M4 G nucl.     ............................................................

                    961                                                 1020
GenBank G nucl.     CTTGCTCCTAAAAACCCAGGAACCGGTCCTGCTTTCACCATAATCAATGGTACCCTAAAA
     HR G nucl.     ............................................................
     M2 G nucl.     CTTGCTCCTAAAAACCCAGGAACCGGTCCTGTCTTTACCATAATCAATGGTACCCTAAAA
     M3 G nucl.     CTTGCTCCTAAAAACCCAGGAACCGGTCCTGCTTTCACCATAATCAATGGTACCCTAAAA
     M4 G nucl.     ............................................................

                    1021                                                1080
GenBank G nucl.     TACTTTGAGACCAGATACATCAGAGTCGATATTGCTGCTCCAATCCTCTCAAGAATGGTC
     HR G nucl.     ............................................................
     M2 G nucl.     TACTTTGAGACCAGATACATCAGAGTCGATATTGCTGCTCCAATCCTCTCAAGAATGGTC
     M3 G nucl.     TACTTTGAGACCAGATACATCAGAGTCGATATTGCTGCTCCAATCCTCTCAAGAATGGTC
     M4 G nucl.     TACTTTGAGACCAGATACATCAGAGTCGATATTGCTGCTCCAATCCTCTCAAGAATGGTC

                    1081                                                1140
GenBank G nucl.     GGAATGATCAGTGGAACTACCACAGAAAGGGAACTGTGGGATGACTGGGCACCATATGAA
     HR G nucl.     ............................................................
     M2 G nucl.     GGAATGATCAGTGGAACTACCACAGAAAGGGAACTGTGGGATGACTGGGCTCCATATGAA
     M3 G nucl.     GGAATGATCAGTGGAACTACCACAGAAAGGGAACTGTGGGATGACTGGGCTCCATATGAA
     M4 G nucl.     GGAATGATCAGTGGAACTACCACAGAAAGGGAACTGTGGGATGACTGGGCTCCATATGAA

                    1141                                                1200
GenBank G nucl.     GACGTGGAAATTGGACCCAATGGAGTTCTGAGGACCAGTTCAGGATATAAGTTTCCTTTA
     HR G nucl.     ............................................................
     M2 G nucl.     GACGTGGAAATTGGACCCAATGGAGTTCTGAGGACCAGTTCAGGATATAAGTTTCCTTTA
     M3 G nucl.     GACGTGGAAATTGGACCCAATGGAGTTCTGAGGACCAGTTCAGGATATAAGTTTCCTTTA
     M4 G nucl.     GACGTGGAAATTGGACCCAATGGAGTTCTGAGGACCAGTTCAGGATATAAGTTTCCTTTA

                    1201                                                1260
GenBank G nucl.     TACATGATTGGACATGGTATGTTGGACTCCGATCTTCATCTTAGCTCAAAGGCTCAGGTG
     HR G nucl.     ............................................................
     M2 G nucl.     TATATGATTGGACATGGTATGTTGGACTCCGATCTTCATCTTAGCTCAAAGGCTCAGGTG
     M3 G nucl.     TATATGATTGGACATGGTATGTTGGACTCCGATCTTCATCTTAGCTCAAAGGCTCAGGTG
     M4 G nucl.     TATATGATTGGACATGGTATGTTGGACTCCGATCTTCATCTTAGCTCAAAGGCTCAGGTG

                    1261                                                1320
GenBank G nucl.     TTCGAACATCCTCACATTCAAGACGCTGCTTCGCAACTTCCTGATGATGAGAGTTTATTT
     HR G nucl.     ............................................................
     M2 G nucl.     TTTGAACATCCTCACATTCAAGACGCTGCTTCGCAGCTTCCTGATGATGAGACTTTATTT
     M3 G nucl.     TTTGAACATCCTCACATTCAAGACGCTGHTGCGCAGCTTCCTGATGATGAGACTTTATTT
     M4 G nucl.     TTTGAACATCCTCACATTCAAGACGCTGCTTCGCAGCTTCCTGATGATGAGACTTTATTT
```

FIGURE 20-3

```
                    1321                                                1380
GenBank G nucl.     TTTGGTGATACTGGGCTATCCAAAAATCCAATCGAGCTTGTAGAAGGTTGGTTCAGTAGT
     HR G nucl.     ............................................................
     M2 G nucl.     TTTGGTGATACTGGGCTATCCAAAAATCCAATCGAGTTTGTAGAAGGTTGGTTCAGTAGT
     M3 G nucl.     TTTGGTGATACTGGGCTATCCAAAAATCCAATCGAGTTTGTAGAAGGTTGGTTCAGTAGT
     M4 G nucl.     TTTGGTGATACTGGGCTATCCAAAAATCCAATCGAGTTTGTAGAAGGTTGGTTCAGTAGT

                    1381                                                1440
GenBank G nucl.     TGGAAAAGCTCTATTGCCTCTTTTTTCTTTATCATAGGGTTAATCATTGGACTATTCTTG
     HR G nucl.     ............................................................
     M2 G nucl.     TGGAAGAGCTCTATTGCCTCTTTTTTCTTTATCATAGGGTTAATCATTGGACTATTCTTG
     M3 G nucl.     TGGAAGAGCTCTATTGCCTCTTTTTTCTTTATCATAGGGTTAATCATTGGACTATTCTTG
     M4 G nucl.     TGGAAGAGCTCTATTGCCTCTTTTTTCTTTATCATAGGGTTAATCATTGGACTATTCTTG

                    1441                                                1500
GenBank G nucl.     GTTCTCCGAGTTGGTATCCATCTTTGCATTAAATTAAAGCACACCAAGAAAAGACAGATT
     HR G nucl.     ............................................................
     M2 G nucl.     GTTCTCCGAGTTGGTATTTATCTTTGCATTAAATTAAAGCACACCAAGAAAAGACAGATT
     M3 G nucl.     GTTCTCCGAGTTGGTATTTATCTTTGCATTAAATTAAAGCACACCAAGAAAAGACAGATT
     M4 G nucl.     GTTCTCCGAGTTGGTATTTATCTTTGCATTAAATTAAAGCACACCAAGAAAAGACAGATT

                    1501                          1536
GenBank G nucl.     TATACAGACATAGAGATGAACCGACTTGGAAAGTAA
     HR G nucl.     ..................................
     M2 G nucl.     TATACAGACATAGAGATGAACCGACTTGGGAAGTAA
     M3 G nucl.     TATACAGACATAGAGATGAACCGACTTGGGAAGTAA
     M4 G nucl.     TATACAGACATAGAGATGAACCGACTTGGGAAGTAA
```

FIGURE 20-4

```
                    1                                                    60
GenBank G a.a.      MKCLLYLAFLFIGVNCKFTIVFPHNQKGNWKNVPSNYHYCPSSSDLNWHNDLIGTAIQVK
     HR G a.a.      MKCLLXLAFLFIGVNCKFTIVFPYNQKGNWKNVPSNYHYCPSSSDLNXHNDLIGTALQVK
     M2 G a.a.      ............................................................
     M3 G a.a.      MKCLLYLAFLFIGVNCKFTIVFPYNRKGNWKNVPSNYHYCPSSSDLNWHNDLIGTALQVK
     M4 G a.a.      MKCLLYLAFLFIGVNCKFTIVFPYNQKGNWKNVPSNYHYCPSSSDLNWHNDLIGTALQVK

                    61                                                   120
GenBank G a.a.      MPKSHKAIQADGWMCHASKWVTTCDFRWYGPKYITQSIRSFTPSVEQCKESIEQTKQGTW
     HR G a.a.      MPKSHKAIQADGWMCHASKWVTTCDFRWYGPKYITHSIRSFTPSVEQCKESIEQTKQGTW
     M2 G a.a.      ............................................................
     M3 G a.a.      MPKSHKAIQADGWMCHASKWVTTCDFRWYGPKYITHSIRSFTPSVEQCKESIEQTKQGTW
     M4 G a.a.      MPKSHKAIQADGWMCHASKWVTTCDFRWYGPKYITHSIRSFTPSVEQCKESIEQTKQGTW

                    121                                                  180
GenBank G a.a.      LNPGFPPQSCGYATVTDAEAVIVQVTPHHVLVDEYTGEWVDSQFINGKCSNYICPTVHNS
     HR G a.a.      LNPGFPPQSCGYATVTDAEAAIVQVTPHHVLVDEYTGEWVDSQFINGKCSNDICPTVHNS
     M2 G a.a.      ............................................................
     M3 G a.a.      LNPGFPPQSCGYATVTDAEAAIVQVTPHHVLVDEYTGEWVDSQFINGKCSNDICPTVHNS
     M4 G a.a.      LNPGFPPQSCGYATVTDAEAAIVQVTPHHVLVDEYTGEWVDSQFINGKCSNDICPTVHNS

                    181                                                  240
GenBank G a.a.      TTWHSDYKVKGLCDSNLISMDITFFSEDGELSSLGKEGTGFRSNYFAYETGGKACKMQYC
     HR G a.a.      TTWHSDYKVKGLCDSNLISMDITFFSEDGELSSLGKEGTGFRSNYFAYETGDKACKMQYC
     M2 G a.a.      ............................................................
     M3 G a.a.      TTWHSDYKVKGLCDSNLISMDITFFSEDGELSSLGKEGTGFRSNYFAYETGDKACKMQYC
     M4 G a.a.      TTWHSDYKVKGLCDSNLISMDITFFSEDGELSSLGKEGTGFRSNYFAYETGDKACKMQYC

                    241                                                  300
GenBank G a.a.      KHWGVRLPSGVWFEMADKDLFAAARFPECPEGSSISAPSQTSVDVSLIQDVERILDYSLC
     HR G a.a.      KRWGVRLPSGVWFEMADKDLFAAARFPECPEGSSISAPSQTSVDVSLIQDVERIL.....
     M2 G a.a.      ..................................PSQTSVDVSLIQDVERILDYSLC
     M3 G a.a.      KHWGVRLPSGVWFEMADKDLFAAARFPECPEGSSISAPSQTSVDVSLIQDVERILDYSLC
     M4 G a.a.      KRWGVRLPSGVWFCMADKDLFAAARFPECPEGSSISAPSQTSVDVSLIQDVERI......

                    301                                                  360
GenBank G a.a.      QETWSKIRAGLPISPVDLSYLAPKNPGTGPAFTIINGTLKYFETRYIRVDIAAPILSRMV
     HR G a.a.      ............................................................
     M2 G a.a.      QETWSKIRAGLPISPVDLSYLAPKNPGTGPVFTIINGTLKYFETRYIRVDIAAPILSRMV
     M3 G a.a.      QETWSKIRAGLPISPVDLSYLAPKNPGTGPAFTIINGTLKYFETRYIRVDIAAPILSRMV
     M4 G a.a.      ..................................YFETRYIRVDIAAPILSRMV

                    361                                                  420
GenBank G a.a.      GMISGTTTERELWDDWAPYEDVEIGPNGVLRTSSGYKFPLYMIGHGMLDSDLHLSSKAQV
     HR G a.a.      ............................................................
     M2 G a.a.      GMISGTTTERELWDDWAPYEDVEIGPNGVLRTSSGYKFPLYMIGHGMLDSDLHLSSKAQV
     M3 G a.a.      GMISGTTTERELWDDWAPYEDVEIGPNGVLRTSSGYKFPLYMIGHGMLDSDLHLSSKAQV
     M4 G a.a.      GMISGTTTERELWDDWAPYEDVEIGPNGVLRTSSGYKFPLYMIGHGMLDSDLHLSSKAQV
```

FIGURE 21-1

	421	480
GenBank G a.a.	FEHPHIQDAASQLPDDESLFFGDTGLSKNPIELVEGWFSSWKSSIASFFFIIGLIIGLFL	
HR G a.a.	....	
M2 G a.a.	FEHPHIQDAASQLPDDETLFFGDTGLSKNPIEFVEGWFSSWKSSIASFFFIIGLIIGLFL	
M3 G a.a.	FEHPHIQDAXAQLPDDETLFFGDTGLSKNPIEFVEGWFSSWKSSIASFFFIIGLIIGLFL	
M4 G a.a.	FEHPHIQDAASQLPDDETLFFGDTGLSKNPIEFVEGWFSSWKSSIASFFFIIGLIIGLFL	

	481	512
GenBank G a.a.	VLRVGIHLCIKLKHTKKRQIYTDIEMNRLGK	
HR G a.a.	....	
M2 G a.a.	VLRVGIYLCIKLKHTKKRQIYTDIEMNRLGK	
M3 G a.a.	VLRVGIYLCIKLKHTKKRQIYTDIEMNRLGK	
M4 G a.a.	VLRVGIYLCIKLKHTKKRQIYTDIEMNRLGK	

FIGURE 21-2

```
                    1                                                   60
GenBank L nucl.     ATGGAAGTCCACGATTTTGAGACCGACGAGTTCAATGATTTCAATGAAGATGACTATGCC
HR L nucl.          ............................................................
M2 L nucl.          ATGGAAGTCCACGATTTTGAGACCGACGAGTTCAATGATTTCAATGAAGATGACTATGCC
M4 L nucl.          ATGGAAGTCCACGATTTTGAGACCGACGAGTTCAATGATTTCAATGAAGATGACTATGCC

                    61                                                  120
GenBank L nucl.     ACAAGAGAATTCCTGAATCCCGATGAGCGCATGACGTACTTGAATCATGCTGATTACAAT
HR L nucl.          ............................................................
M2 L nucl.          ACAAGAGAATTCCTGAATCCCGATGAGCGCATGACGTACTTGAATCATGCTGATTACAAT
M4 L nucl.          ACAAGAGAATTCCTGAATCCCGATGAGCGCATGACGTACTTGAATCATGCTGATTACAAT

                    121                                                 180
GenBank L nucl.     TTGAATTCTCCTCTAATTAGTGATGATATTGACAATTTGATCAGGAAATTCAATTCTCTT
HR L nucl.          ............................................................
M2 L nucl.          TTGAATTCTCCTCTAATTAGTGATGATATTGACAATTTGATCAGGAAATTCAATTCTCTT
M4 L nucl.          TTGAATTCTCCTCTAATTAGTGATGATATTGACAATTTGATCAGGAAATTCAATTCTCTT

                    181                                                 240
GenBank L nucl.     CCGATTCCCTCGATGTGGGATAGTAAGAACTGGGATGGAGTTCTTGAGATGTTAACATCA
HR L nucl.          ............................................................
M2 L nucl.          CCGATTCCCTCGATGTGGGATAGTAAGAACTGGGATGGAGTTCTTGAGATGTTAACATCA
M4 L nucl.          CCGATTCCCTCGATGTGGGATAGTAAGAACTGGGATGGAGTTCTTGAGATGTTAACATCA

                    241                                                 300
GenBank L nucl.     TGTCAAGCCAATCCCATCTCAACATCTCAGATGCATAAATGGATGGGAAGTTGGTTAATG
HR L nucl.          ............................................................
M2 L nucl.          TGTCAAGCCAATCCCATCTCAACATCTCAGATGCATAAATGGATGGGAAGTTGGTTAATG
M4 L nucl.          TGTCAAGCCAATCCCATCTCAACATCTCAGATGCATAAATGGATGGGAAGTTGGTTAATG

                    301                                                 360
GenBank L nucl.     TCTGATAATCATGATGCCAGTCAAGGGTATAGTTTTTTACATGAAGTGGACAAAGAGGCA
HR L nucl.          ............................................................
M2 L nucl.          TCTGATAATCATGATGCCAGTCAAGGGTATAGTTTTTTACATGAAGTG............
M4 L nucl.          TCTGATAATCATGATGCCAGTCAAGGGTATAGTTTTTTACATGAAGTGGACAAAGAGGCA

                    361                                                 420
GenBank L nucl.     GAAATAACATTTGACGTGGTGGAGACCTTCATCCGCGGCTGGGGCAACAAACCAATTGAA
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          GAAATAACATTTGACGTGGTGGAGACCTTCATCCGCGGCTGGGGCAACAAACCAATTGAA

                    421                                                 480
GenBank L nucl.     TACATCAAAAAGGAAAGATGGACTGACTCATTCAAAATTCTCGCTTATTTGTGTCAAAAG
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          TACATCAAAAAGGAAAGATGGACTGACTCATTCAAAATTCTCGCTTATTTGTGTCAAAAG

                    481                                                 540
GenBank L nucl.     TTTTTGGACTTACACAAGTTGACATTAATCTTAAATGCTGTCTCTGAGGTGGAATTGCTC
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          TTTTTGGACTTACACAAGTTGACATTAATCTTAAATGCTGTCTCTGAGGTGGAATTGCTC
```


FIGURE 22-1

```
                    541                                                 600
GenBank L nucl.     AACTTGGCGAGGACTTTCAAAGGCAAAGTCAGAAGAAGTTCTCATGGAACGAACATATGC
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          AACTTGGCGAGGACTTTCAAAGGCAAAGTCAGAAGAAGTTCTCATGGAACGAACATATGC

                    601                                                 660
GenBank L nucl.     AGGATTAGGGTTCCCAGCTTGGGTCCTACTTTTATTTCAGAAGGATGGGCTTACTTCAAG
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          AGGCTTAGGGTTCCCAGCTTGGGTCCTACTTTTATTTCAGAAGGATGGGCTTACTTCAAG

                    661                                                 720
GenBank L nucl.     AAACTTGATATTCTAATGGACCGAAACTTTCTGTTAATGGTCAAAGATGTGATTATAGGG
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          AAACTTGATATTCTAATGGACCGAAACTTTCTGTTAATGGTCAAAGATGTGATTATAGGG

                    721                                                 780
GenBank L nucl.     AGGATGCAAACGGTGCTATCCATGGTATGTAGAATAGACAACCTGTTCTCAGAGCAAGAC
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          AGGATGCAAACGGTGCTATCCATGGTATGTAGAATAGACAACCTGTTCTCAGAGCAAGAC

                    781                                                 840
GenBank L nucl.     ATCTTCTCCCTTCTAAATATCTACAGAATTGGAGATAAAATTGTGGAGAGGCAGGGAAAT
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          ATCTTCTCCCTTCTAAATATCTACAGAATTGGAGATAAAATTGTGGAGAGGCAGGGAAAT

                    841                                                 900
GenBank L nucl.     TTTTCTTATGACTTGATTAAAATGGTGGAACCGATATGCAACTTGAAGCTGATGAAATTA-
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          TTTTCTTATGACTTGATTAAAATGGTGGAACCGATATGCAACTTGAGGCTGATGAAATTA

                    901                                                 960
GenBank L nucl.     GCAAGAGAATCAAGGCCTTTAGTCCCACAATTCCCTCATTTTGAAAATCATATCAAGACT
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          GCAAGAGAATCAAGGCCTTTAGTCCCACAATTCCCTCATTTTGAAAATCATATCAAGACT

                    961                                                1020
GenBank L nucl.     TCTGTTGATGAAGGGGCAAAAATTGACCGAGGTATAAGATTCCTCCATGATCAGATAATG
HR L nucl.          ............................................................
M2 L nucl.          ............................................................
M4 L nucl.          TCTGTTGATGAAGGGGCAAAAATTGACCGAGGTATAAGATTCCTCCATGATCAGATAATG
```


FIGURE 22-2

```
                    1021                                                1080
GenBank L nucl.     AGTGTGAAAACAGTGGATCTCACACTGGTGATTTATGGATCGTTCAGACATTGGGGTCAT
HR L nucl.          ..................................................CATTGGGGTCAT
M2 L nucl.          ..........................................................
M4 L nucl.          AGTGTGAAAACAGTGGATCTCACACTGGTGATTTATGGATCGTTCAGACATTGGGGTCAT

                    1081                                                1140
GenBank L nucl.     CCTTTTATAGATTATTACACTGGACTAGAAAAATTACATTCCCAAGTAACCATGAAGAAA
HR L nucl.          CCTTTTATAGATTATTACGCTGGWCTAGAAAAATTACATTCCCAAGTWACCATKAAGAAA
M2 L nucl.          ..........................................................
M4 L nucl.          CCTTTTATAGATTATTACGCTGGACTAGAAAAATTACATTCCCAAGTAACCATGAAGAAA

                    1141                                                1200
GenBank L nucl.     GATATTGATGTGTCATATGCAAAAGCACTTGCAAGTGATTTAGCTCGGATTGTTCTATTT
HR L nucl.          GATATTGATGTGTCATATGCRAAAGCACTTGCAAGTGATTTAGCTCGGATTGTTCTATTT
M2 L nucl.          ..........................................................
M4 L nucl.          GATATTGATGTGTCATATGCAAAAGCACTTGCAAGTGATTTAGCTCGGATTGTTCTATTT

                    1201                                                1260
GenBank L nucl.     CAACAGTTCAATGATCATAAAAAGTGGTTCGTGAATGGAGACTTGCTCCCTCATGATCAT
HR L nucl.          CAACAGTTCAATGATCATAMAAAGTGGTTCGTGAATGGAGACTTGCTCCCTCATGATCAT
M2 L nucl.          ..........................................................
M4 L nucl.          CAACAGTTCAATGATCATAAAAAGTGGTTCGTGAATGGAGACTTGCTCCCTCATGATCAT

                    1261                                                1320
GenBank L nucl.     CCCTTTAAAAGTCATGTTAAAGAAAATACATGGCCCACAGCTGCTCAAGTTCAAGATTTT
HR L nucl.          CCCTTTAAAAGTCATGTTAAAGAAAATACATGGCCCACAGCTGCTCAAGTTCAAGATTTT
M2 L nucl.          ..........................................................
M4 L nucl.          CCCTTTAAAAGTCATGTTAAAGAAAATACATGGCCCACAGCTGCTCAAGTTCAAGATTTT

                    1321                                                1380
GenBank L nucl.     GGAGATAAATGGCATGAACTTCCGCTGATTAAATGTTTTGAAATACCCGACTTACTAGAC
HR L nucl.          GGAGATAAATGGCATGAACTTCCGCTGATTAAATGTTTTGAAATACCCGACTTACTAGAC
M2 L nucl.          ..........................................................
M4 L nucl.          GGAGATAAATGGCATGAACTTCCGCTGATTAAATGTTTTGAAATACCCGACTTACTAGAC

                    1381                                                1440
GenBank L nucl.     CCATCGATAATATACTCTGACAAAAGTCATTCAATGAATAGGTCAGAGGTGTTGAAACAT
HR L nucl.          CCATCGATAATATACTCTGACAAAAGTCATTCAATGAATAGGTCAGAGGTGTTGAAACAT
M2 L nucl.          ..........................................................
M4 L nucl.          CCATCGATAATATACTCTGACAAAAGTCATTCAATGAATAGGTCAGAGGTGTTGAAACAT

                    1441                                                1500
GenBank L nucl.     GTCCGAATGAATCCGAACACTCCTATCCCTAGTAAAAAGGTGTTGCAGACTATGTTGGAC
HR L nucl.          GTCCGAATGAATCCGAACACTCCTATCCCTAGTAAAAAGGTGTTGCAGACTATGTTGGAC
M2 L nucl.          ..........................................................
M4 L nucl.          GTCCGAATGAATCCGAACACTCCTATCCCTAGTAAAAAGGTGTTGCAGACTATGTTGGAC
```

FIGURE 22-3

```
                2041                                                2100
GenBank L nucl. GAAGGTCTACGGCAAAAAGGATGGACTATCCTCAATCTACTGGTTATTCAAAGAGAGGCT
HR L nucl.      GAAGGTCTACGGCAAAAAGGATGGAGTATCCTCAATCTACTGGTTATTCAAAGAGAGGCT
M2 L nucl.      ..........................................................
M4 L nucl.      GAAGGTCTACGGCAAAAAGGATGGAGTATCCTCAATCTACTGGTTATTCAAAGAGAGGCT

                2101                                                2160
GenBank L nucl. AAAATCAGAAACACTGCTGTCAAAGTCTTGGCACAAGGTGATAATCAAGTTATTTGCACA
HR L nucl.      AAAATCAGAAACACTGCTGTCAAAGTCTTGGCACAAGGTGATAATCAAGTTATTTGCACA
M2 L nucl.      ..........................................................
M4 L nucl.      AAAATCAGAAACACTGCTGTCAAAGTCTTGGCACAAGGTGATAATCAAGTTATTTGCACA

                2161                                                2220
GenBank L nucl. CAGTATAAAACGAAGAAATCGAGAAACGTTGTAGAATTACAGGGTGCTCTCAATCAAATG
HR L nucl.      CAGTATAAAACGAAGAAATCGAGAAACGTTGTAGAATTACAGGGTGCTCTCAATCAAATG
M2 L nucl.      ..........................................................
M4 L nucl.      CAGTATAAAACGAAGAAATCGAGAAACGTTGTAGAATTACAGGGTGCTCTCAATCAAATG

                2221                                                2280
GenBank L nucl. GTTTCTAATAATGAGAAAATTATGACTGCAATCAAAATAGGGACAGGGAAGTTAGGACTT
HR L nucl.      GTTTCTAATAATGAGAAAATTATGACTGCAATCAAAATAGGGACAGGGAAGTTAGGACTT
M2 L nucl.      ..........................................................
M4 L nucl.      GTTTCTAATAATGAGAAAATTATGACTGCAATCAAAATAGGGACAGGGAAGTTAGGACTT

                2281                                                2340
GenBank L nucl. TTGATAAATGACGATGAGACTATGCAATCTGCAGATTACTTGAATTATGGAAAAATACCG
HR L nucl.      TTGATAAATGACGATGAGACTATGCAATCTGCAGATTACTTGAATTATGGAAAAATACCG
M2 L nucl.      ..........................................................
M4 L nucl.      TTGATAAATGACGATGAGACTATGCAATCTGCAGATTACTTGAATTATGGAAAAATACCA

                2341                                                2400
GenBank L nucl. ATTTTCCGTGGAGTGATTAGAGGGTTAGAGACCAAGAGATGGTCACGAGTGACTTGTGTC
HR L nucl.      ATTTTCCGTGGAGTGATTAGAGGGTTAGAGACCAAGAGATGGTCACGAGTGACTTGTGTC
M2 L nucl.      ..........................................................
M4 L nucl.      ATTTTCCGTGGAGTGATTAGAGGGTTAGAGACCAAGAGATGGTCACGAGTGACTTGTGTC

                2401                                                2460
GenBank L nucl. ACCAATGACCAAATACCCACTTGTGCTAATATAATGAGCTCAGTTTCCACAAATGCTCTC
HR L nucl.      ACCAATGACCAAATACCCACTTGTGCTAATATAATGAGCTCAGTTTCCACAAATGCTCTC
M2 L nucl.      ..........................................................
M4 L nucl.      ACCAATGACCAAATACCCACTTGTGCTAATATAATGAGCTCAGTTTCCACAAATGCTCTC

                2461                                                2520
GenBank L nucl. ACCGTAGCTCATTTTGCTGAGAACCCAATCAATGCCATGATACAGTACAATTATTTTGGG
HR L nucl.      ACCGTAGCTCATTTTGCTGAGAACCCAATCAATGCCATGATACAGTACAATTATTTTGGG
M2 L nucl.      ..........................................................
M4 L nucl.      ACCGTAGCTCATTTTGCTGAGAACCCAATCAATGCCATGATACAGTACAATTATTTTGGG

                2521                                                2580
GenBank L nucl. ACATTTGCTAGACTCTTGTTGATGATGCATGATCCTGCTCTTCGTCAATCATTGTATGAA
HR L nucl.      ACATTTGCTAGACTCTTGTTGATGATGCATGATCCTGCTCTTCGTCAATCATTGTATGAA
M2 L nucl.      ..........................................................
M4 L nucl.      ACATTTGCTAGACTCTTGTTGATGATGCATGATCCTGCTCTTCGTCAATCATTGTATGAA
```

FIGURE 22-5

```
                    2581                                                2640
GenBank L nucl.     GTTCAAGATAAGATACCGGGCTTGCACAGTTCTACTTTCAAATACGCCATGTTGTATTTG
HR L nucl.          GTTCAAGATAAGATACCGGGCTTGCACAGTTCTACTTTCAAATACGCCATGTTGTATTTG
M2 L nucl.          ............................................................
M4 L nucl.          GTTCAAGATAAGATACCGGGCTTGCACAGTTCTACTTTCAAATACGCCATGTTGTATTTG

                    2641                                                2700
GenBank L nucl.     GACCCTTCCATTGGAGGAGTGTCGGGCATGTCTTTGTCCAGGTTTTTGATTAGAGCCTTC
HR L nucl.          GACCCTTCCATTGGAGGAGTGTCGGGCATGTCTTTGTCCAGGTTTTTGATTAGAGCCTTC
M2 L nucl.          ............................................................
M4 L nucl.          GACCCTTCCATTGGAGGAGTGTCGGGCATGTCTTTGTCCAGGTTTTTGATTAGAGCCTTC

                    2701                                                2760
GenBank L nucl.     CCAGATCCCGTAACAGAAAGTCTCTCATTCTGGAGATTCATCCATGTACATGCTCGAAGT
HR L nucl.          CCAGATCCCGTAACAGAAAGTCTCTCATTCTGGAGATTCATCCATGTACATGCTCGAAGT
M2 L nucl.          ............................................................
M4 L nucl.          CCAGATCCCGTAACAGAAAGTCTCTCATTCTGGAGATTCATCCATGTACATGCTCGAAGT

                    2761                                                2820
GenBank L nucl.     GAGCATCTGAAGGAGATGAGTGCAGTATTTGGAAACCCCGAGATAGCCAAGTTTCGAATA
HR L nucl.          GAGCATCTGAAGGAGATGAGTGCAGTATTTGGAAACCCCGAGATAGCCAAGTTTCGAATA
M2 L nucl.          ............................................................
M4 L nucl.          GAGCATCTGAAGGAGATGAGTGCAGTATTTGGAAACCCCGAGATAGCCAAGTTTCGAATA

                    2821                                                2880
GenBank L nucl.     ACTCACATAGACAAGCTAGTAGAAGATCCAACCTCTCTGAACATCGCTATGGGAATGAGT
HR L nucl.          ACTCACATAGACAAGCTAGTAGAAGATCCAACCTCTCTGAACATCGCTATGGGAATGAGT
M2 L nucl.          ............................................................
M4 L nucl.          ACTCACATAGACAAGCTAGTAGAAGATCCAACCTCTCTGAACATCGCTATGGGAATGAGT

                    2881                                                2940
GenBank L nucl.     CCAGCGAACTTGTTAAAGACTGAGGTTAAAAAATGCTTAATCGAATCAAGACAAACCATC
HR L nucl.          CCAGCGAACTTGTTAAAGACTGAGGTTAAAAAATGCTTAATCGAATCAAGACAAACCATC
M2 L nucl.          ............................................................
M4 L nucl.          CCAGCGAACTTGTTAAAGACTGAGGTTAAAAAATGCTTAATCGAATCAAGACAAACCATC

                    2941                                                3000
GenBank L nucl.     AGGAACCAGGTGATTAAGGATGCAACCATATATTTGTATCATGAAGAGGATCGGCTCAGA
HR L nucl.          AGGAACCAGGTGATTAAGGATGCAACCATATATTTGTATCATGAAGAGGATCGGCTCAGA
M2 L nucl.          ............................................................
M4 L nucl.          AGGAACCAGGTGATTAAGGATGCAACCATATATTTGTATCATGAAGAGGATCGGCTCAGA

                    3001                                                3060
GenBank L nucl.     AGTTTCTTATGGTCAATAAATCCTCTGTTCCCTAGATTTTTAAGTGAATTCAAATCAGGC
HR L nucl.          AGTTTCTTATGGTCAATAAATCCTCTGTTCCCTAGATTTTTAAGTGAATTCAAATCAGGC
M2 L nucl.          ............................................................
M4 L nucl.          AGTTTCTTATGGTCAATAAATCCTCTGTTCCCTAGATTTTTAAGTGAATTCAAATCAGGC

                    3061                                                3120
GenBank L nucl.     ACTTTTTTGGGAGTCGCAGACGGGCTCATCAGTCTATTTCAAAATTCTCGTACTATTCGG
HR L nucl.          ACTTTTTTGGGAGTCGCAGACGGGCTCATCAGTCTATTTCAAAATTCTCGTACTATTCGG
M2 L nucl.          ............................................................
M4 L nucl.          ACTTTTTTGGGAGTCGCAGACGGGCTCATCAGTCTATTTCAAAATTCTCGTACTATTCGG
```

FIGURE 22-6

```
                     3121                                                        3180
GenBank L nucl.      AACTCCTTTAAGAAAAAGTATCATAGGGAATTGGATGATTTGATTGTGAGGAGTGAGGTA
HR L nucl.           AACTCCTTTAAGAAAAAGTATCATAGGGAATTGGATGATTTGATTGTGAGGAGTGAGGTA
M2 L nucl.           ............................................................
M4 L nucl.           AACTCCTTTAAGAAAAAGTATCATAGGGAATTGGATGATTTGATTGTGAGGAGTGAGGTA

                     3181                                                        3240
GenBank L nucl.      TCCTCTTTGACACATTTAGGGAAACTTCATTTGAGAAGGGGATCATGTAAAATGTGGACA
HR L nucl.           TCCTCTTTGACACATTTAGGGAAACTTCATTTGAGAAGGGGATCATGTAAAATGTGGACA
M2 L nucl.           ............................................................
M4 L nucl.           TCCTCTTTGACACATTTAGGGAAACTTCATTTGAGAAGGGGATCATGTAAAATGTGGACA

                     3241                                                        3300
GenBank L nucl.      TGTTCAGCTACTCATGCTGACACATTAAGATACAAATCCTGGGGCCGTACAGTTATTGGG
HR L nucl.           TGTTCAGCTACTCATGCTGACACATTAAGATACAAATCCTGGGGCCGTACAGTTATTGGG
M2 L nucl.           ............................................................
M4 L nucl.           TGTTCAGCTACTCATGCTGACACATTAAGATACAAATCCTGGGGCCGTACAGTTATTGGG

                     3301                                                        3360
GenBank L nucl.      ACAACTGTACCCCATCCATTAGAAATGTTGGGTCCACAACATCGAAAAGAGACTCCTTGT
HR L nucl.           ACAACTGTACCCCATCCATTAGAAATGTTGGGTCCACAACATCGAAAAGAGACTCCTTGT
M2 L nucl.           ............................................................
M4 L nucl.           ACAACTGTACCCCATCCATTAGAAATGTTGGGTCCACAACATCGAAAAGAGACTCCTTGT

                     3361                                                        3420
GenBank L nucl.      GCACCATGTAACACATCAGGGTTCAATTATGTTTCTGTGCATTGTCCAGACGGGATCCAT
HR L nucl.           GCACCATGTAACACATCAGGGTTCAATTATGTTTCTGTGCATTGTCCAGACGGGATCCAT
M2 L nucl.           ............................................................
M4 L nucl.           GCACCATGTAACACATCAGGGTTCAATTATGTTTCTGTGCATTGTCCAGACGGGATCCAT

                     3421                                                        3480
GenBank L nucl.      GACGTCTTTAGTTCACGGGGACCATTGCCTGCTTATCTAGGGTCTAAAACATCTGAATCT
HR L nucl.           GACGTCTTTAGTTCACGGGGACCATTGCCTGCTTATCTAGGGTCTAAAACATCTGAATCT
M2 L nucl.           ............................................................
M4 L nucl.           GACGTCTTTAGTTCACGGGGACCATTGCCTGCTTATCTAGGGTCTAAAACATCTGAATCT

                     3481                                                        3540
GenBank L nucl.      ACATCTATTTTGCAGCCTTGGGAAAGGGAAAGCAAAGTCCCACTGATTAAAAGAGCTACA
HR L nucl.           ACATCTATTTTGCAGCCTTGGGAAAGGGAAAGCAAAGTCCCACTGATTAAAAGAGCTACA
M2 L nucl.           ............................................................
M4 L nucl.           ACATCTATTTTGCAGCCTTGGGAAAGGGAAAGCAAAGTCCCACTGATTAAAAGAGCTACA

                     3541                                                        3600
GenBank L nucl.      CGTCTTAGAGATGCTATCTCTTGGTTTGTTGAACCCGACTCTAAACTAGCAATGACTATA
HR L nucl.           CGTCTTAGAGATGCTATCTCTTGGTTTGTTGAACCCGACTCTAAACTAGCAATGACTATA
M2 L nucl.           ............................................................
M4 L nucl.           CGTCTTAGAGATGCTATCTCTTGGTTTGTTGAACCCGACTCTAAACTAGCAATGACTATA

                     3601                                                        3660
GenBank L nucl.      CTTTCTAACATCCACTCTTTAACAGGCGAAGAATGGACCAAAAGGCAGCATGGGTTCAAA
HR L nucl.           CTTTCTAACATCCACTCTTTAACAGGCGAAGAATGGACCAAAAGGCAGCATGGGTTCAAA
M2 L nucl.           ............................................................
M4 L nucl.           CTTTCTAACATCCACTCTTTAACAGGCGAAGAATGGACCAAAAGGCAGCATGGGTTCAAA
```

FIGURE 22-7

```
                     3661                                                      3720
GenBank L nucl.      AGAACAGGGTCTGCCCTTCATAGGTTTTCGACATCTCGGATGAGCCATGGTGGGTTCGCA
HR L nucl.           AGAACAGGGTCTGCCCTTCATAGGTTTTCGACATCTCGGATGAGCCATGGTGGGTTCGCA
M2 L nucl.           ............................................................
M4 L nucl.           AGAACAGGGTCTGCCCTTCATAGGTTTTCGACATCTCGGATGAGCCATGGTGGGTTCGCA

                     3721                                                      3780
GenBank L nucl.      TCTCAGAGCACTGCAGCATTGACCAGGTTGATGGCAACTACAGACACCATGAGGGATCTG
HR L nucl.           TCTCAGAGCACTGCAGCATTGACCAGGTTGATGGCAACTACAGACACCATGAGGGATCTG
M2 L nucl.           ............................................................
M4 L nucl.           TCTCAGAGCACTGCAGCATTGACCAGGTTGATGGCAACTACAGACACCATGAGGGATCTG

                     3781                                                      3840
GenBank L nucl.      GGAGATCAGAATTTCGACTTTTTATTCCAAGCAACGTTGCTCTATGCTCAAATTACCACC
HR L nucl.           GGAGATCAGAATTTCGACTTTTTATTCCAGGCAACGTTGCTCTATGCTCAGATTACCACC
M2 L nucl.           ............................................................
M4 L nucl.           GGAGATCAGAATTTCGACTTTTTATTCCANGCAACGTTGCTCTATGCTCANATTACCACC

                     3841                                                      3900
GenBank L nucl.      ACTGTTGCAAGAGACGGATGGATCACCAGTTGTACAGATCATTATCATATTGCCTGTAAG
HR L nucl.           ACTGTTGCAAGAGACGGATGGATCACCAGTTGTACAGATCATTATCATATTGCCTGTAAG
M2 L nucl.           ............................................................
M4 L nucl.           ACTGTTGCAAGAGACGGATGGATCACCAGTTGTACAGATCATTATCATATTGCCTGTAAG

                     3901                                                      3960
GenBank L nucl.      TCCTGTTTGAGACCCATAGAAGAGATCACCCTGGACTCAAGTATGGACTACACGCCCCCA
HR L nucl.           TCCTGTTTGAGACCCATAGAAGAGATCACCCTGGACTCAAGTATGGACTACACGCCCCCA
M2 L nucl.           ............................................................
M4 L nucl.           TCCTGTTTGAGACCCATAGAAGAGATCACCCTGGACTCAAGTATGGACTACACGCCCCCA

                     3961                                                      4020
GenBank L nucl.      GATGTATCCCATGTGCTGAAGACATGGAGGAATGGGGAAGGTTCGTGGGGACAAGAGATA
HR L nucl.           GATGTATCCCATGTGCTGAAGACATGGAGGAATGGGGAAGGTTCGTGGGGACAAGAGATA
M2 L nucl.           ............................................................
M4 L nucl.           GATGTATCCCATGTGCTGAAGACATGGAGGAATGGGGAAGGTTCGTGGGGACAAGAGATA

                     4021                                                      4080
GenBank L nucl.      AAACAGATCTATCCTTTAGAAGGGAATTGGAAGAATTTAGCACCTGCTGAGCAATCCTAT
HR L nucl.           AAACAGATCTATCCTTTAGAAGGGAATTGGAAGAATTTAGCACCTGCTGAGCAATCCTAT
M2 L nucl.           ............................................................
M4 L nucl.           AAACAGATCTATCCTTTAGAAGGGAATTGGAAGAATTTAGCACCTGCTGAGCAATCCTAT

                     4081                                                      4140
GenBank L nucl.      CAAGTCGGCAGATGTATAGGTTTTCTATATGGAGACTTGGCGTATAGAAAATCTACTCAT
HR L nucl.           CAAGTCGGCAGATGTATAGGTTTTCTATATGGAGACTTGGCGTATAGAAAATCTACTCAT
M2 L nucl.           ............................................................
M4 L nucl.           CAAGTCGGCAGATGTATAGGTTTTCTATATGGAGACTTGGCGTATAGAAAATCTACTCAT

                     4141                                                      4200
GenBank L nucl.      GCCGAGGACAGTTCTCTATTTCCTCTATCTATACAAGGTCGTATTAGAGGTCGAGGTTTC
HR L nucl.           GCCGAGGACAGTTCTCTATTTCCTCTATCTATACAAGGTCGTATTAGAGGTCGAGGTTTC
M2 L nucl.           ............................................................
M4 L nucl.           GCCGAGGACAGTTCTCTATTTCCTCTATCTATACAAGGTCGTATTAGAGGTCGAGGTTTC
```

FIGURE 22-8

```
                    4201                                                4260
GenBank L nucl.     TTAAAAGGGTTGCTAGACGGATTAATGAGAGCAAGTTGCTGCCAAGTAATACACCGGAGA
HR L nucl.          TTAAAAGGGTTGCTAGACGGATTAATGAGAGCAAGTTGCTGCCAAGTAATACACCGGAGA
M2 L nucl.          ............................................................
M4 L nucl.          TTAAAAGGGTTGCTAGACGGATTAATGAGAGCAAGTTGCTGCCAAGTAATACACCGGAGA

                    4261                                                4320
GenBank L nucl.     AGTCTGGCTCATTTGAAGAGGCCGGCCAACGCAGTGTACGGAGGTTTGATTTACTTGATT
HR L nucl.          AGTCTGGCTCATTTGAAGAGGCCGGCCAACGCAGTGTACGGAGGTTTGATTTACTTGATT
M2 L nucl.          ............................................................
M4 L nucl.          AGTCTGGCTCATTTGAAGAGGCCGGCCAACGCAGTGTACGGAGGTTTGATTTACTTGATT

                    4321                                                4380
GenBank L nucl.     GATAAATTGAGTGTATCACCTCCATTCCTTTCTCTTACTAGATCAGGACCTATTAGAGAC
HR L nucl.          GATAAATTGAGTGTATCACCTCCATTCCTTTCTCTTACTAGATCAGGACCTATTAGAGAC
M2 L nucl.          ............................................................
M4 L nucl.          GATAAATTGAGTGTATCACCTCCATTCCTTTCTCTTACTAGATCAGGACCTATTAGAGAC

                    4381                                                4440
GenBank L nucl.     GAATTAGAAACGATTCCCCACAAGATCCCAACCTCCTATCCGACAAGCAACCGTGATATG
HR L nucl.          GAATTAGAAACGATTCCCCACAAGATCCCAACCTCCTATCCGACAAGCAACCGTGATATG
M2 L nucl.          ............................................................
M4 L nucl.          GAATTAGAAACGATTCCCCACAAGATCCCAACCTCCTATCCGACAAGCAACCGTGATATG

                    4441                                                4500
GenBank L nucl.     GGGGTGATTGTCAGAAATTACTTCAAATACCAATGCCGTCTAATTGAAAAGGGAAAATAC
HR L nucl.          GGGGTGATTGTCAGAAATTACTTCAAATACCAATGCCGTCTAATTGAAAAGGGAAAATAC
M2 L nucl.          ............................................................
M4 L nucl.          GGGGTGATTGTCAGAAATTACTTCAAATACCAATGCCGTCTAATTGAAAAGGGAAAATAC

                    4501                                                4560
GenBank L nucl.     AGATCACATTATTCACAATTATGGTTATTCTCAGATGTCTTATCCATAGACTTCATTGGA
HR L nucl.          AGATCACATTATTCACAATTATGGTTATTCTCAGATGTCTTATCCATAGACTTCATTGGA
M2 L nucl.          ............................................................
M4 L nucl.          AGATCACATTATTCACAATTATGGTTATTCTCAGATGTCTTATCCATAGACTTCATTGGA

                    4561                                                4620
GenBank L nucl.     CCATTCTCTATTTCCACCACCCTCTTGCAAATCCTATACAAGCCATTTTTATCTGGGAAA
HR L nucl.          CCATTCTCTATTTCCACCACCCTCTTGCAAATCCTATACAAGCCATTTTTATCTGGGAAA
M2 L nucl.          ............................................................
M4 L nucl.          CCATTCTCTATTTCCACCACCCTCTTGCAAATCCTATACAAGCCATTTTTATCTGGGAAA

                    4621                                                4680
GenBank L nucl.     GATAAGAATGAGTTGAGAGAGCTGGCAAATCTTTCTTCATTGCTAAGATCAGGAGAGGGG
HR L nucl.          GATAAGAATGAGTTGAGAGAGCTGGCAAATCTTTCTTCATTGCTAAGATCAGGAGAGGGG
M2 L nucl.          ............................................................
M4 L nucl.          GATAAGAATGAGTTGAGAGAGCTGGCAAATCTTTCTTCATTGCTAAGATCAGGAGAGGGG

                    4681                                                4740
GenBank L nucl.     TGGGAAGACATACATGTGAAATTCTTCACCAAGGACATATTATTGTGTCCAGAGGAAATC
HR L nucl.          TGGGAAGACATACATGTGAAATTCTTCACCAAGGACATATTATTGTGTCCAGAGGAAATC
M2 L nucl.          ............................................................
M4 L nucl.          TGGGAAGACATACATGTGAAATTCTTCACCAAGGACATATTATTGTGTCCAGAGGAAATC
```

FIGURE 22-9

```
                4741                                                    4800
GenBank L nucl. AGACATGCTTGCAAGTTCGGGATTGCTAAGGATAATAATAAAGACATGAGCTATCCCCCT
HR L nucl.      AGACATGCTTGCAAGTTCGGGATTGCTAAGGATAATAATAAAGACATGAGCTATCCCCCT
M2 L nucl.      ............................................................
M4 L nucl.      AGACATGCTTGCAAGTTCGGGATTGCTAAGGATAATAATAAAGACATGAGCTATCCCCCT

                4801                                                    4860
GenBank L nucl. TGGGGAAGGGAATCCAGAGGGACAATTACAACAATCCCTGTTTATTATACGACCACCCCT
HR L nucl.      TGGGGAAGGGAATCCAGAGGGACAATTACAACAATCCCTGTTTATTATACGACCACCCCT
M2 L nucl.      ............................................................
M4 L nucl.      TGGGGAAGGGAATCCAGAGGGACAATTACAACAATCCCTGTTTATTATACGACCACCCCT

                4861                                                    4920
GenBank L nucl. TACCCAAAGATGCTAGAGATGCCTCCAAGAATCCAAAATCCCCTGCTGTCCGGAATCAGG
HR L nucl.      TACCCAAAGATGCTAGAGATGCCTCCAAGAATCCAAAATCCCCTGCTGTCCGGAATCAGG
M2 L nucl.      ............................................................
M4 L nucl.      TACCCAAAGATGCTAGAGATGCCTCCAAGAATCCAAAATCCCCTGCTGTCCGGAATCAGG

                4921                                                    4980
GenBank L nucl. TTGGGCCAATTACCAACTGGCGCTCATTATAAAATTCGGAGTATATTACATGGAATGGGA
HR L nucl.      TTGGGCCAGTTACCAACTGGCGCTCATTATAAAATTCGGAGTATATTACATGGAATGGGA
M2 L nucl.      ............................................................
M4 L nucl.      TTGGGCCAGTTACCAACTGGCGCTCATTATAAAATTCGGAGTATATTACATGGAATGGGA

                4981                                                    5040
GenBank L nucl. ATCCATTACAGGGACTTCTTGAGTTGTGGAGACGGCTCCGGAGGGATGACTGCTGCATTA
HR L nucl.      ATCCATTACAGGGACTTCTTGAGTTGTGGAGACGGCTCCGGAGGGATGACTGCTGCATTA
M2 L nucl.      ............................................................
M4 L nucl.      ATCCATTACAGGGACTTCTTGAGTTGTGGAGACGGCTCCGGAGGGATGACTGCTGCATTA

                5041                                                    5100
GenBank L nucl. CTACGAGAAAATGTGCATAGCAGAGGAATATTCAATAGTCTGTTAGAATTATCAGGGTCA
HR L nucl.      CTACGAGAAAATGTGCATAGCAGAGGAATATTCAATAGTCTGTTAGAATTATCAGGGTCA
M2 L nucl.      ............................................................
M4 L nucl.      CTACGAGAAAATGTGCATAGCAGAGGAATATTCAATAGTCTGTTAGAATTATCAGGGTCA

                5101                                                    5160
GenBank L nucl. GTCATGCGAGGCGCCTCTCCTGAGCCCCCCAGTGCCCTAGAAACTTTAGGAGGAGATAAA
HR L nucl.      GTCATGCGAGGCGCCTCTCCTGAGCCCCCCAGTGCCCTAGAAACTTTAGGAGGAGATAAA
M2 L nucl.      ............................................................
M4 L nucl.      GTCATGCGAGGCGCCTCTCCTGAGCCCCCCAGTGCCCTAGAAACTTTAGGAGGAGATAAA

                5161                                                    5220
GenBank L nucl. TCGAGATGTGTAAATGGTGAAACATGTTGGGAATATCCATCTGACTTATGTGACCCAAGG
HR L nucl.      TCGAGATGTGTAAATGGTGAAACATGTTGGGAATATCCATCTGACTTATGTGACCCAAGG
M2 L nucl.      ............................................................
M4 L nucl.      TCGAGATGTGTAAATGGTGAAACATGTTGGGAATATCCATCTGACTTATGTGACCCAAGG

                5221                                                    5280
GenBank L nucl. ACTTGGGACTATTTCCTCCGACTCAAAGCAGGCTTGGGGCTTCAAATTGATTTAATTGTA
HR L nucl.      ACTTGGGACTATTTCCTCCGACTCAAAGCAGGCTTGGGGCTTCAAATTGATTTAATTGTA
M2 L nucl.      ............................................................
M4 L nucl.      ACTTGGGACTATTTCCTCCGACTCAAAGCAGGCTTGGGGCTTCAAATTGATTTAATTGTA
```

FIGURE 22-10

```
                    5281                                                      5340
GenBank L nucl.     ATGGATATGGAAGTTCGGGATTCTTCTACTAGCCTGAAAATTGAGACGAATGTTAGAAAT
HR L nucl.          ATGGATATGGAAGTTCGGGATTCTTCTACTAGCCTGAAAATTGAGACGAATGTTAGAAAT
M2 L nucl.          ............................................................
M4 L nucl.          ATGGATATGGAAGTTCGGGATTCTTCTACTAGCCTGAAAATTGAGACGAATGTTAGAAAT

                    5341                                                      5400
GenBank L nucl.     TATGTGCACCGGATTTTGGATGAGCAAGGAGTTTTAATCTACAAGACTTATGGAACATAT
HR L nucl.          TATGTGCACCGGATTTTGGATGAGCAAGGAGTTTTAATCTACAAGACTTATGGAACATAT
M2 L nucl.          ............................................................
M4 L nucl.          TATGTGCACCGGATTTTGGATGAGCAAGGAGTTTTAATCTACAAGACTTATGGAACATAT

                    5401                                                      5460
GenBank L nucl.     ATTTGTGAGAGCGAAAAGAATGCAGTAACAATCCTTGGTCCCATGTTCAAGACGGTCGAC
HR L nucl.          ATTTGTGAGAGCGAAAAGAATGCAGTAACAATCCTTGGTCCCATGTTCAAGACGGTCGAC
M2 L nucl.          ............................................................
M4 L nucl.          ATTTGTGAGAGCGAAAAGAATGCAGTAACAATCCTTGGTCCCATGTTCAAGACGGTCGAC

                    5461                                                      5520
GenBank L nucl.     TTAGTTCAAACAGAATTTAGTAGTTCTCAAACGTCTGAAGTATATATGGTATGTAAAGGT
HR L nucl.          TTAGTTCAAACAGAATTTAGTAGTTCTCAAACGTCTGAAGTATATATGGTATGTAAAGGT
M2 L nucl.          ............................................................
M4 L nucl.          TTAGTTCAAACAGAATTTAGTAGTTCTCAAACGTCTGAAGTATATATGGTATGTAAAGGT

                    5521                                                      5580
GenBank L nucl.     TTGAAGAAATTAATCGATGAACCCAATCCCGATTGGTCTTCCATCAATGAATCCTGGAAA
HR L nucl.          TTGAAGAAATTAATCGATGAACCCAATCCCGATTGGTCTTCCATCAATGAATCCTGGAAA
M2 L nucl.          ............................................................
M4 L nucl.          TTGAAGAAATTAATCGATGAACCCAATCCCGATTGGTCTTCCATCAATGAATCCTGGAAA

                    5581                                                      5640
GenBank L nucl.     AACCTGTACGCATTCCAGTCATCAGAACAGGAATTTGCCAGAGCAAAGAAGGTTAGTACA
HR L nucl.          AACCTGTACGCATTCCAGTCATCAGAACAGGAATTTGCCAGAGCAAAGAAGGTTAGTACA
M2 L nucl.          ............................................................
M4 L nucl.          AACCTGTACGCATTCCAGTCATCAGAACAGGAATTTGCCAGAGCAAAGAAGGTTAGTACA

                    5641                                                      5700
GenBank L nucl.     TACTTTACCTTGACAGGTATTCCCTCCCAATTCATTCCTGATCCTTTTGTAAACATTGAG
HR L nucl.          TACTTTACCTTGACAGGTATTCCCTCCCAATTCATTCCTGATCCTTTTGTGAACATTGAG
M2 L nucl.          ............................................................
M4 L nucl.          TACTTTACCTTGACAGGTATTCCCTCCCAATTCATTCCTGATCCTTTTGTGAACATTGAG

                    5701                                                      5760
GenBank L nucl.     ACTATGCTACAAATATTCGGAGTACCCACGGGTGTGTCTCATGCGGCTGCCTTAAAATCA
HR L nucl.          ACTATGCTACAAATATTCGGAGTACCCACGGGTGTGTCTCATGCGGCTGCCTTAAAATCA
M2 L nucl.          ............................................................
M4 L nucl.          ACTATGCTACAAATATTCGGAGTACCCACGGGTGTGTCTCATGCGGCTGCCTTAAAATCA

                    5761                                                      5820
GenBank L nucl.     TCTGATAGACCTGCAGATTTATTGACCATTAGCCTTTTTTATATGGCGATTATATCGTAT
HR L nucl.          TCTGATAGACCTGCAGATTTATTGACCATTAGCCTTTTTTATATGGCGATTATATCGTAT
M2 L nucl.          ............................................................
M4 L nucl.          TCTGATAGACCTGCAGATTTATTGACCATTAGCCTTTTTTATATGGCGATTATATCGTAT
```

FIGURE 22-11

```
                    5821                                                5880
GenBank L nucl.     TATAACATCAATCATATCAGAGTAGGACCGATACCTCCGAACCCCCCCATCAGATGGAATT
HR L nucl.          TATAACATCAATCATATCAGAGTAGGACCGATACCTCCGAACCCCCCCATCAGATGGAATT
M2 L nucl.          ............................................................
M4 L nucl.          TATAACATCAATCATATCAGAGTAGGACCGATACCTCCGAACCCCCCCATCAGATGGAATT

                    5881                                                5940
GenBank L nucl.     GCACAAAATGTGGGGATCGCTATAACTGGTATAAGCTTTTGGCTGAGTTTGATGGAGAAA
HR L nucl.          GCACAAAATGTGGGGATCGCTATAACTGGTATAAGCTTTTGGCTGAGTTTGATGGAGAAA
M2 L nucl.          ............................................................
M4 L nucl.          GCACAAAATGTGGGGATCGCTATAACTGGTATAAGCTTTTGGCTGAGTTTGATGGAGAAA

                    5941                                                6000
GenBank L nucl.     GACATTCCACTATATCAACAGTGTTTAGCAGTTATCCAGCAATCATTCCCGATTAGGTGG
HR L nucl.          GACATTCCACTATATCAACAGTGTTTAGCAGTTATCCAGCAATCATTCCCGATTAGGTGG
M2 L nucl.          ............................................................
M4 L nucl.          GACATTCCACTATATCAACAGTGTTTAGCAGTTATCCAGCAATCATTCCCGATTAGGTGG

                    6001                                                6060
GenBank L nucl.     GAGGCTGTTTCAGTAAAAGGAGGATACAAGCAGAAGTGGAGTACTAGAGGTGATGGGCTC
HR L nucl.          GAGGCTGTTTCAGTAAAAGGAGGATACAAGCAGAAGTGGAGTACTAGAGGTGATGGGCTC
M2 L nucl.          ............................................................
M4 L nucl.          GAGGCTGTTTCAGTAAAAGGAGGATACAAGCAGAAGTGGAGTACTAGAGGTGATGGGCTC

                    6061                                                6120
GenBank L nucl.     CCAAAAGATACCCGAACTTCAGACTCCTTGGCCCCAATCGGGAACTGGATCAGATCTCTG
HR L nucl.          CCAAAAGATACCCGAATTTCAGACTCCTTGGCCCCAATCGGGAACTGGATCAGATCTCTG
M2 L nucl.          ............................................................
M4 L nucl.          CCAAAAGATACCCGAATTTCAGACTCCTTGGCCCCAATCGGGAACTGGATCAGATCTCTG

                    6121                                                6180
GenBank L nucl.     GAATTGGTCCGAAACCAAGTTCGTCTAAATCCATTCAATGAGATCTTGTTCAATCAGCTA
HR L nucl.          GAATTGGTCCGAAACCAAGTTCGTCTAAATCCATTCAATGAGATCTTGTTCAATCAGCTA
M2 L nucl.          ............................................................
M4 L nucl.          GAATTGGTCCGAAACCAAGTTCGTCTAAATCCATTCAATGAGATCTTGTTCAATCAGCTA

                    6181                                                6240
GenBank L nucl.     TGTCGTACAGTGGATAATCATTTGAAATGGTCAAATTTGCGAACAAACACAGGAATGATT
HR L nucl.          TGTCGTACAGTGGATAATCATTTGAAATGGTCAAATTTGCGAAAAAACACAGGAATGATT
M2 L nucl.          ............................................................
M4 L nucl.          TGTCGTACAGTGGATAATCATTTGAAATGGTCAAATTTGCGAAAAAACACAGGAATGATT

                    6241                                                6300
GenBank L nucl.     GAATGGATCAATAGACGAATTTCAAAAGAAGACCGGTCTATACTGATGTTGAAGAGTGAC
HR L nucl.          GAATGGATCAATAGACGAATTTCAAAAGAAGACCGGTCTATACTGATGTTGAAGAGTGAC
M2 L nucl.          ............................................................
M4 L nucl.          GAATGGATCAATAGACGAATTTCAAAAGAAGACCGGTCTATACTGATGTTGAAGAGTGAC
```

FIGURE 22-12

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                  6301                                                6360
GenBank L nucl.   CTACACGAGGAAAACTCTTGGAGAGATTAA.............................
HR L nucl.        CTACATGAGGAAAACTCTTGGAGAGATTAAAAAATCATGAGGAGACTCCAAACTTTAAGT
M2 L nucl.        ............................................................
M4 L nucl.        CTACATGAGGAAAACTCTTGGAGAGATTAA.............................

                  6361                          6395
GenBank L nucl.   ..................................
HR L nucl.        ATGAAAAAAACTTTGATCCTTAAGACCCTCTTGTG
M2 L nucl.        ..................................
M4 L nucl.        ..................................
```


FIGURE 22-13

```
                    1                                                   60
GenBank L  a.a.     MEVHDFETDEFNDFNEDDYATREFLNPDERMTYLNHADYNLNSPLISDDIDNLIRKFNSL
HR L a.a.           ............................................................
M4 L a.a.           MEVHDFETDEFNDFNEDDYATREFLNPDERMTYLNHADYNLNSPLISDDIDNLIRKFNSL

                    61                                                  120
GenBank L  a.a.     PIPSMWDSKNWDGVLEMLTSCQANPISTSQMHKWMGSWLMSDNHDASQGYSFLHEVDKEA
HR L a.a.           ............................................................
M4 L a.a.           PIPSMWDSKNWDGVLEMLTSCQANPISTSQMHKWMGSWLMSDNHDASQGYSFLHEVDKEA

                    121                                                 180
GenBank L  a.a.     EITFDVVETFIRGWGNKPIEYIKKERWTDSFKILAYLCQKFLDLHKLTLILNAVSEVELL
HR L a.a.           ............................................................
M4 L a.a.           EITFDVVETFIRGWGNKPIEYIKKERWTDSFKILAYLCQKFLDLHKLTLILNAVSEVELL

                    181                                                 240
GenBank L  a.a.     NLARTFKGKVRRSSHGTNICRIRVPSLGPTFISEGWAYFKKLDILMDRNFLLMVKDVIIG
HR L a.a.           ............................................................
M4 L a.a.           NLARTFKGKVRRSSHGTNICRLRVPSLGPTFISEGWAYFKKLDILMDRNFLLMVKDVIIG

                    241                                                 300
GenBank L  a.a.     RMQTVLSMVCRIDNLFSEQDIFSLLNIYRIGDKIVERQGNFSYDLIKMVEPICNLKLMKL
HR L a.a.           ............................................................
M4 L a.a.           RMQTVLSMVCRIDNLFSEQDIFSLLNIYRIGDKIVERQGNFSYDLIKMVEPICNLRLMKL

                    301                                                 360
GenBank L  a.a.     ARESRPLVPQFPHFENHIKTSVDEGAKIDRGIRFLHDQIMSVKTVDLTLVIYGSFRHWGH
HR L a.a.           ............................................................HWGH
M4 L a.a.           ARESRPLVPQFPHFENHIKTSVDEGAKIDRGIRFLHDQIMSVKTVDLTLVIYGSFRHWGH

                    361                                                 420
GenBank L  a.a.     PFIDYYTGLEKLHSQVTMKKDIDVSYAKALASDLARIVLFQQFNDHKKWFVNGDLLPHDH
HR L a.a.           PFIDYYAGLEKLHSQVTXKKDIDVSYAKALASDLARIVLFQQFNDHXKWFVNGDLLPHDH
M4_L.pro            PFIDYYAGLEKLHSQVTMKKDIDVSYAKALASDLARIVLFQQFNDHKKWFVNGDLLPHDH

                    421                                                 480
GenBank L  a.a.     PFKSHVKENTWPTAAQVQDFGDKWHELPLIKCFEIPDLLDPSIIYSDKSHSMNRSEVLKH
HR L a.a.           PFKSHVKENTWPTAAQVQDFGDKWHELPLIKCFEIPDLLDPSIIYSDKSHSMNRSEVLKH
M4 L a.a.           PFKSHVKENTWPTAAQVQDFGDKWHELPLIKCFEIPDLLDPSIIYSDKSHSMNRSEVLKH

                    481                                                 540
GenBank L  a.a.     VRMNPNTPIPSKKVLQTMLDTKATNWKEFLKEIDEKGLDDDDLIIGLKGKERELKLAGRF
HR L a.a.           VRMNPNTPIPSKKVLQTMLDTKATNWKEFLKEIDEKGLDDDDLIIGLKGKERELKLAGRF
M4 L a.a.           VRMNPNTPIPSKKVLQTMLDTKATNWKEFLKEIDEKGLDDDDLIIGLKGKERELKLAGRF

                    541                                                 600
GenBank L  a.a.     FSLMSWKLREYFVITEYLIKTHFVPMFKGLTMADDLTAVIKKMLDSSSGQGLKSYEAICI
HR L a.a.           FSLMSWKLREYFVITEYLIKTHFVPMFKGLTMADDLTAVIKKMLDSSSGQGLKSYEAICI
M4 L a.a.           FSLMSWKLREYFVITEYLIKTHFVPMFKGLTMADDLTAVIKKMLDSSSGQGLKSYEAICI
```

FIGURE 23-1

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                    601                                                 660
GenBank L  a.a.     ANHIDYEKWNNHQRKLSNGPVFRVMGQFLGYPSLIERTHEFFEKSLIYYNGRPDLMRVHN
HR L a.a.           ANHIDYEKWNNHQRKLSNGPVFRVMGQFLGYPSLIERTHEFFEKSLIYYNGRPDLMRVHN
M4 L a.a.           ANHIDYEKWNNHQRKLSNGPVFRVMGQFLGYPSLIERTHEFFEKSLIYYNGRPDLMRVHN

                    661                                                 720
GenBank L  a.a.     NTLINSTSQRVCWQGQEGGLEGLRQKGWTILNLLVIQREAKIRNTAVKVLAQGDNQVICT
HR L a.a.           NTLINSTSQRVCWQGQEGGLEGLRQKGWSILNLLVIQREAKIRNTAVKVLAQGDNQVICT
M4 L a.a.           NTLINSTSQRVCWQGQEGGLEGLRQKGWSILNLLVIQREAKIRNTAVKVLAQGDNQVICT

                    721                                                 780
GenBank L  a.a.     QYKTKKSRNVVELQGALNQMVSNNEKIMTAIKIGTGKLGLLINDDETMQSADYLNYGKIP
HR L a.a.           QYKTKKSRNVVELQGALNQMVSNNEKIMTAIKIGTGKLGLLINDDETMQSADYLNYGKIP
M4 L a.a.           QYKTKKSRNVVELQGALNQMVSNNEKIMTAIKIGTGKLGLLINDDETMQSADYLNYGKIP

                    781                                                 840
GenBank L  a.a.     IFRGVIRGLETKRWSRVTCVTNDQIPTCANIMSSVSTNALTVAHFAENPINAMIQYNYFG
HR L a.a.           IFRGVIRGLETKRWSRVTCVTNDQIPTCANIMSSVSTNALTVAHFAENPINAMIQYNYFG
M4 L a.a.           IFRGVIRGLETKRWSRVTCVTNDQIPTCANIMSSVSTNALTVAHFAENPINAMIQYNYFG

                    841                                                 900
GenBank L  a.a.     TFARLLLMMHDPALRQSLYEVQDKIPGLHSSTFKYAMLYLDPSIGGVSGMSLSRFLIRAF
HR L a.a.           TFARLLLMMHDPALRQSLYEVQDKIPGLHSSTFKYAMLYLDPSIGGVSGMSLSRFLIRAF
M4 L a.a.           TFARLLLMMHDPALRQSLYEVQDKIPGLHSSTFKYAMLYLDPSIGGVSGMSLSRFLIRAF

                    901                                                 960
GenBank L  a.a.     PDPVTESLSFWRFIHVHARSEHLKEMSAVFGNPEIAKFRITHIDKLVEDPTSLNIAMGMS
HR L a.a.           PDPVTESLSFWRFIHVHARSEHLKEMSAVFGNPEIAKFRITHIDKLVEDPTSLNIAMGMS
M4 L a.a.           PDPVTESLSFWRFIHVHARSEHLKEMSAVFGNPEIAKFRITHIDKLVEDPTSLNIAMGMS

                    961                                                 1020
GenBank L  a.a.     PANLLKTEVKKCLIESRQTIRNQVIKDATIYLYHEEDRLRSFLWSINPLFPRFLSEFKSG
HR L a.a.           PANLLKTEVKKCLIESRQTIRNQVIKDATIYLYHEEDRLRSFLWSINPLFPRFLSEFKSG
M4 L a.a.           PANLLKTEVKKCLIESRQTIRNQVIKDATIYLYHEEDRLRSFLWSINPLFPRFLSEFKSG

                    1021                                                1080
GenBank L  a.a.     TFLGVADGLISLFQNSRTIRNSFKKKYHRELDDLIVRSEVSSLTHLGKLHLRRGSCKMWT
HR L a.a.           TFLGVADGLISLFQNSRTIRNSFKKKYHRELDDLIVRSEVSSLTHLGKLHLRRGSCKMWT
M4 L a.a.           TFLGVADGLISLFQNSRTIRNSFKKKYHRELDDLIVRSEVSSLTHLGKLHLRRGSCKMWT

                    1081                                                1140
GenBank L  a.a.     CSATHADTLRYKSWGRTVIGTTVPHPLEMLGPQHRKETPCAPCNTSGFNYVSVHCPDGIH
HR L a.a.           CSATHADTLRYKSWGRTVIGTTVPHPLEMLGPQHRKETPCAPCNTSGFNYVSVHCPDGIH
M4 L a.a.           CSATHADTLRYKSWGRTVIGTTVPHPLEMLGPQHRKETPCAPCNTSGFNYVSVHCPDGIH

                    1141                                                1200
GenBank L  a.a.     DVFSSRGPLPAYLGSKTSESTSILQPWERESKVPLIKRATRLRDAISWFVEPDSKLAMTI
HR L a.a.           DVFSSRGPLPAYLGSKTSESTSILQPWERESKVPLIKRATRLRDAISWFVEPDSKLAMTI
M4 L a.a.           DVFSSRGPLPAYLGSKTSESTSILQPWERESKVPLIKRATRLRDAISWFVEPDSKLAMTI
```

FIGURE 23-2

```
                    1201                                                1260
GenBank L  a.a.     LSNIHSLTGEEWTKRQHGFKRTGSALHRFSTSRMSHGGFASQSTAALTRLMATTDTMRDL
HR L a.a.           LSNIHSLTGEEWTKRQHGFKRTGSALHRFSTSRMSHGGFASQSTAALTRLMATTDTMRDL
M4 L a.a.           LSNIHSLTGEEWTKRQHGFKRTGSALHRFSTSRMSHGGFASQSTAALTRLMATTDTMRDL

                    1261                                                1320
GenBank L  a.a.     GDQNFDFLFQATLLYAQITTTVARDGWITSCTDHYHIACKSCLRPIEEITLDSSMDYTPP
HR L a.a.           GDQNFDFLFQATLLYAQITTTVARDGWITSCTDHYHIACKSCLRPIEEITLDSSMDYTPP
M4 L a.a.           GDQNFDFLFXATLLYAXITTTVARDGWITSCTDHYHIACKSCLRPIEEITLDSSMDYTPP

                    1321                                                1380
GenBank L  a.a.     DVSHVLKTWRNGEGSWGQEIKQIYPLEGNWKNLAPAEQSYQVGRCIGFLYGDLAYRKSTH
HR L a.a.           DVSHVLKTWRNGEGSWGQEIKQIYPLEGNWKNLAPAEQSYQVGRCIGFLYGDLAYRKSTH
M4 L a.a.           DVSHVLKTWRNGEGSWGQEIKQIYPLEGNWKNLAPAEQSYQVGRCIGFLYGDLAYRKSTH

                    1381                                                1440
GenBank L  a.a.     AEDSSLFPLSIQGRIRGRGFLKGLLDGLMRASCCQVIHRRSLAHLKRPANAVYGGLIYLI
HR L a.a.           AEDSSLFPLSIQGRIRGRGFLKGLLDGLMRASCCQVIHRRSLAHLKRPANAVYGGLIYLI
M4 L a.a.           AEDSSLFPLSIQGRIRGRGFLKGLLDGLMRASCCQVIHRRSLAHLKRPANAVYGGLIYLI

                    1441                                                1500
GenBank L  a.a.     DKLSVSPPFLSLTRSGPIRDELETIPHKIPTSYPTSNRDMGVIVRNYFKYQCRLIEKGKY
HR L a.a.           DKLSVSPPFLSLTRSGPIRDELETIPHKIPTSYPTSNRDMGVIVRNYFKYQCRLIEKGKY
M4 L a.a.           DKLSVSPPFLSLTRSGPIRDELETIPHKIPTSYPTSNRDMGVIVRNYFKYQCRLIEKGKY

                    1501                                                1560
GenBank L  a.a.     RSHYSQLWLFSDVLSIDFIGPFSISTTLLQILYKPFLSGKDKNELRELANLSSLLRSGEG
HR L a.a.           RSHYSQLWLFSDVLSIDFIGPFSISTTLLQILYKPFLSGKDKNELRELANLSSLLRSGEG
M4 L a.a.           RSHYSQLWLFSDVLSIDFIGPFSISTTLLQILYKPFLSGKDKNELRELANLSSLLRSGEG

                    1561                                                1620
GenBank L  a.a.     WEDIHVKFFTKDILLCPEEIRHACKFGIAKDNNKDMSYPPWGRESRGTITTIPVYYTTTP
HR L a.a.           WEDIHVKFFTKDILLCPEEIRHACKFGIAKDNNKDMSYPPWGRESRGTITTIPVYYTTTP
M4 L a.a.           WEDIHVKFFTKDILLCPEEIRHACKFGIAKDNNKDMSYPPWGRESRGTITTIPVYYTTTP

                    1621                                                1680
GenBank L  a.a.     YPKMLEMPPRIQNPLLSGIRLGQLPTGAHYKIRSILHGMGIHYRDFLSCGDGSGGMTAAL
HR L a.a.           YPKMLEMPPRIQNPLLSGIRLGQLPTGAHYKIRSILHGMGIHYRDFLSCGDGSGGMTAAL
M4 L a.a.           YPKMLEMPPRIQNPLLSGIRLGQLPTGAHYKIRSILHGMGIHYRDFLSCGDGSGGMTAAL

                    1681                                                1740
GenBank L  a.a.     LRENVHSRGIFNSLLELSGSVMRGASPEPPSALETLGGDKSRCVNGETCWEYPSDLCDPR
HR L a.a.           LRENVHSRGIFNSLLELSGSVMRGASPEPPSALETLGGDKSRCVNGETCWEYPSDLCDPR
M4 L a.a.           LRENVHSRGIFNSLLELSGSVMRGASPEPPSALETLGGDKSRCVNGETCWEYPSDLCDPR

                    1741                                                1800
GenBank L  a.a.     TWDYFLRLKAGLGLQIDLIVMDMEVRDSSTSLKIETNVRNYVHRILDEQGVLIYKTYGTY
HR L a.a.           TWDYFLRLKAGLGLQIDLIVMDMEVRDSSTSLKIETNVRNYVHRILDEQGVLIYKTYGTY
M4 L a.a.           TWDYFLRLKAGLGLQIDLIVMDMEVRDSSTSLKIETNVRNYVHRILDEQGVLIYKTYGTY

                    1801                                                1860
GenBank L  a.a.     ICESEKNAVTILGPMFKTVDLVQTEFSSSQTSEVYMVCKGLKKLIDEPNPDWSSINESWK
HR L a.a.           ICESEKNAVTILGPMFKTVDLVQTEFSSSQTSEVYMVCKGLKKLIDEPNPDWSSINESWK
M4 L a.a.           ICESEKNAVTILGPMFKTVDLVQTEFSSSQTSEVYMVCKGLKKLIDEPNPDWSSINESWK
```

FIGURE 23-3

```
                    1861                                                1920
GenBank L  a.a.     NLYAFQSSEQEFARAKKVSTYFTLTGIPSQFIPDPFVNIETMLQIFGVPTGVSHAAALKS
HR L a.a.           NLYAFQSSEQEFARAKKVSTYFTLTGIPSQFIPDPFVNIETMLQIFGVPTGVSHAAALKS
M4 L a.a.           NLYAFQSSEQEFARAKKVSTYFTLTGIPSQFIPDPFVNIETMLQIFGVPTGVSHAAALKS

                    1921                                                1980
GenBank L  a.a.     SDRPADLLTISLFYMAIISYYNINHIRVGPIPPNPPSDGIAQNVGIAITGISFWLSLMEK
HR L a.a.           SDRPADLLTISLFYMAIISYYNINHIRVGPIPPNPPSDGIAQNVGIAITGISFWLSLMEK
M4 L a.a.           SDRPADLLTISLFYMAIISYYNINHIRVGPIPPNPPSDGIAQNVGIAITGISFWLSLMEK

                    1981                                                2040
GenBank L  a.a.     DIPLYQQCLAVIQQSFPIRWEAVSVKGGYKQKWSTRGDGLPKDTRTSDSLAPIGNWIRSL
HR L a.a.           DIPLYQQCLAVIQQSFPIRWEAVSVKGGYKQKWSTRGDGLPKDTRISDSLAPIGNWIRSL
M4 L a.a.           DIPLYQQCLAVIQQSFPIRWEAVSVKGGYKQKWSTRGDGLPKDTRISDSLAPIGNWIRSL

                    2041                                                2100
GenBank L  a.a.     ELVRNQVRLNPFNEILFNQLCRTVDNHLKWSNLRRNTGMIEWINRRISKEDRSILMLKSD
HR L a.a.           ELVRNQVRLNPFNEILFNQLCRTVDNHLKWSNLRKNTGMIEWINRRISKEDRSILMLKSD
M4 L a.a.           ELVRNQVRLNPFNEILFNQLCRTVDNHLKWSNLRKNTGMIEWINRRISKEDRSILMLKSD

                    2101    2110
GenBank L  a.a.     LHEENSWRD
HR L a.a.           LHEENSWRD
M4 L a.a.           LHEENSWRD
```

FIGURE 23-4